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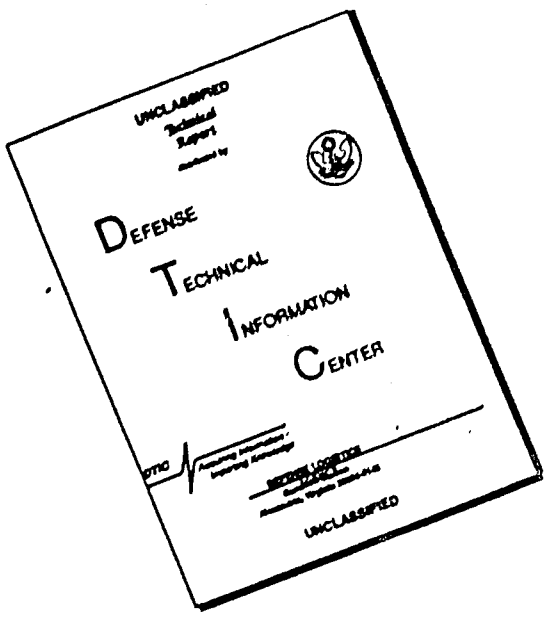
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HUMAN REACTIONS IN DISASTER SITUATIONS

Report on Research Commissioned by
Chemical Corps Medical Laboratories
(Army Chemical Center, Maryland),
David B. Dill, Scientific Director

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NATIONAL OPINION RESEARCH CENTER

University of Chicago

Report No. 52

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CHAPTER I INTRODUCTION: PROBLEMS AND METHODS

During the period 1950-1954, the National Opinion Research Center conducted a series of psychological studies of community disasters occurring in various sections of the United States. This research was sponsored and financed by the Army Chemical Center under contracts #DA-18-108-CML-762 and #DA-18-108-CML-2275. This volume reports the findings of eight separate field investigations of community disasters, with particular emphasis on a study of the White County, Arkansas tornado of March 21, 1952.

The present chapter will describe the problems investigated, the disasters studied, and the methods and techniques of study. Later chapters will deal with the specific problems and findings of the field investigations.

THE GENERAL PROBLEMS STUDIED

The maintenance or rapid re-establishment of effective social organization and morale in community disasters, either wartime or peacetime, is the major problem with which the National Opinion Research Center Disaster Project has been concerned. Subsumed under this more general problem are the many specific problems concerning human behavior in disasters--e.g., the nature of fear and panic reactions, crowd behavior, leadership, rumor and other forms of communication, the effectiveness of various rescue, relief, control and rehabilitation measures, and the changes in personality and social structure which are produced by disasters.

The practical aim of the project has been to develop findings which will facilitate the development of effective disaster preparedness and control measures.

THE FRAME OF REFERENCE

A disaster may be defined in many ways, depending upon the frame of reference of the investigator.

From a purely physical viewpoint, a disaster usually means deaths, injuries, and the destruction of property--i.e., a changed physical setting.

From the standpoint of a sociologist or other social scientist, a disaster may be defined as an event which threatens the integrity or solidarity of the social structure and involves social disorganization or the breakdown of social controls, and the introduction of innovations into the social system.

From a social-psychological view, a disaster may be characterized as an event which involves a shattering or breakdown in social expectations and the

confrontation of groups and individuals with challenges and danger to basic social and personal values.

For the specialist in collective behavior and social change, a disaster can be viewed as an event which produces a break in the established or customary social order, the emergence of elementary forms of collective behavior, and the development of new social structures from the elementary collective interactions.

For the communications researcher, a disaster involves the breakdown in the usual channels and models of communication, the supplantation of the formal and conventional channels by informal and non-conventional channels, and a change in the content of communications.

From a psychiatric viewpoint, a disaster may be viewed as a traumatic or stressful event which shatters or challenges the person's ego-defenses or personality structure and which results in development of various types of adjustive mechanisms to handle the stress encountered.

For the policy-maker or planner, a disaster poses a whole host of practical problems in supply and services, logistics, and the behavioral control of the population--problems concerned with the effective maintenance of order, social control, and morale.

No single definition of disaster will suffice for all purposes. Any definition must take into account the particular problems under investigation. However, in view of the heterogeneity of meaning associated with the term "disaster," it is necessary to specify the class of events which are here considered "disasters" and the particular approach used in this study.

Nearly all of the above approaches to disasters will receive some attention in this report. However, the primary emphasis throughout this report will be placed on the sociological and social-psychological perspective. The events here viewed as disasters are those which involve threats, actual danger, and losses to persons who reside in communities or share a common territorial area and customary mode of life. More specifically, the following criteria have been used as a guide in the selection of the particular disaster events studied:

a. The event affects a community of persons--i.e., a collection of people who occupy a common territory and are bound together in relatively permanent social relationships.

b. The event confronts a large segment of the community with actual danger, or threats of danger and loss to cherished values and material objects.

c. The event results in deaths, injuries, the destruction of property, and other losses and deprivations to the population, e.g., the disruption of community utilities and other community services.

d. The direct or indirect consequences of the disaster affect a large proportion of the population in the community—i.e., the repercussions are diffused throughout the community rather than focalized on a particular group or collection of individuals.

The series of studies reported upon here, then, is concerned with peace-time disasters occurring in various communities throughout the United States. Within the above criteria, the events have been selected to cover community disasters varying in scope, type of disaster, and type of groups or population affected, with a view to deriving a set of generalizations concerning the nature of human behavior under conditions of stress similar to those which may be anticipated in the event of war or widespread natural disasters. The term "disaster," of course, does not constitute a homogeneous class of events. Disasters vary in many respects—in the nature of the precipitating agent, in the speed of impact, the scope of destruction, the length of threat, etc. Moreover, it should be clear that, in a social psychological sense, the concept of "disaster" is relative to the particular group or society affected. An event which constitutes a disaster for one group, community, or society will not necessarily constitute a disaster for another. This is particularly true for certain types of disaster—e.g., famines, floods, earthquakes. Even within the same community, it cannot be assumed that all persons will experience the physical impact of a disaster in the same manner. As later chapters will show, one of the important criteria accounting for differences in behavior in disasters is the nature of the person's threat, loss, or deprivational involvement; that the nature of the person-to-disaster relationship is highly variable; and that these variations in the relationship of persons to the event—or the nature of their ego-involvement—are of primary importance in differentiating various forms of disaster behavior. The detailed distinctions that have been found important in influencing disaster reactions will be presented in later chapters. Here it will suffice to indicate that, in describing disaster reactions, care must be taken to delineate the precise conditions under which certain forms of behavior will occur. This report will introduce such distinctions wherever possible.

BACKGROUND OF THE STUDY

The importance of crises in producing changes in social and personal organization has long been recognized by social and psychological scientists. The concept of "crisis" played a central role in the theory and research of William I. Thomas.[1] Sorokin, in his book, MAN AND SOCIETY IN CALAMITY,[2] concerned himself with some of the broad effects of war, revolution, famine, and pestilence on personality and social organization. Toynbee's thesis of "challenge and response" in historical civilizations, and the psychoanalysts' emphasis on the

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[1] Thomas, W. I. Source Book for Social Origins. Boston: The Gorham Press, 1909, 6th edition.

[2] Sorokin, Pitirim. Man and Society in Calamity. New York: E. P. Dutton & Co., Inc., 1942.

significance of traumatic experiences in personality disorders are further examples of the widespread recognition of the influence of critical situations in producing changes in human behavior.

Despite this general recognition of the importance of crises in influencing personal and social life, there has been little systematic empirical research on crises, particularly of those types of crises which are commonly referred to as "disasters." Samuel Prince's investigation of the Halifax disaster of 1917,[1] remains as one of the few major studies of a disaster in the sociological literature, and the only other major investigations, bearing on the problems of human behavior in disasters, are the U. S. Strategic Bombing Survey studies of morale in Germany and Japan following World War II.[2]

In 1950, when the National Opinion Research Center Disaster Project was established, there was no study of civilian population which was particularly concerned with behavior occurring during the immediate crisis or emergency period of disasters, and no systematic investigation dealing specifically with the behavior of U. S. populations.

It was this gap in knowledge concerning immediate reactions to disaster and the lack of systematic knowledge concerning the behavior of American populations in the event of disaster, which the NORC project was designed to fill. In 1949, NORC was approached by a group from Ohio State University who were interested in studying the "smog" event in Donora, Pennsylvania. However, preliminary investigation convinced our organization that the recruitment and training of a field force to investigate this disaster would take too long to produce the necessary data, and that, in order to conduct effective studies of the initial reactions to disaster, it would be necessary to have a preliminary plan and a trained staff ready to move into the disaster-struck community as soon as possible after the disaster.

In January, 1950, the Army Chemical Center entered into a contract with the National Opinion Research Center to draw up a plan for the study of disasters. This plan was formulated and thoroughly reviewed at the "Conference on Psychological Aspects of Disasters," held at the Medical Division, Army Chemical Center on January 30, 1950. A detailed copy of this plan is appended to this report as Appendix A-9. Briefly stated, it provided for the recruitment and training of a disaster research team who would be ready to move into a disaster-struck community within a few hours' notice in order to interview a systematic sample of the population. The Army Chemical Center approved this plan and entered into a contract with NORC for the implementation of the plan.

---

[1] Prince, Samuel H. Catastrophe and Social Change. New York: Columbia University Press, 1920.

[2] U. S. Strategic Bombing Survey, The Effects of Strategic Bombing on German Morale V-1, 2. Washington: U. S. Government Printing Office, 1947.

Ibid: The Effects of Strategic Bombing on Japanese Morale.

By July, 1950, a team of part-time interviewers had been recruited for this purpose and they were given 20 hours of training each month in intensive interviewing and in indoctrination in the available literature on interviewing and disasters. In an attempt to provide as close an approximation to the conditions that might be encountered in a large-scale disaster, the interviewers were required to interview in local small-scale crisis events--apartment house and hotel fires, explosions, bombings, trains, automobiles, and plane crashes, etc. During the first year, the disaster team collected nearly 200 interviews in about 60 different events.

During the first year, there occurred no community disasters of suitable scope to warrant the full-scale investigation anticipated by the master plan. However, the experience and suggestive materials contained in the training interviews obtained during the first year suggested that valuable, if not definitive, findings could be obtained from the study of smaller-scale events than those anticipated in the original disaster plan. Hence, during the second year, the Army Chemical Center provided additional funds for approximately six small-scale field trips to community disasters throughout the United States, while still retaining the disaster team in readiness for a larger-scale disaster study.

During the period July, 1951 through March, 1952, six small-scale field investigations and a large-scale study of the Arkansas tornadoes were carried out by the disaster team. In May, 1952, the contract was renewed and revised to provide for a full-time staff of eight members who would undertake the analysis of the interview data obtained during the previous year and be prepared for additional field research. In August, 1952, an additional field investigation was carried out, bringing the total number of field studies to eight.

THE DISASTERS STUDIED

Following is a brief description of five of the six community disasters studied by the NORC disaster team.

1. Airplane crash at an airshow in Flagler, Colorado. On September 15, 1951 a stunting airplane crashed into a crowd of spectators at an airshow held in Flagler, Colorado, a small, isolated community in southeastern Colorado composed of about 850 persons. The crash killed 20 persons and injured approximately 30 others.

2. A series of house explosions and fires in Brighton, New York. During the afternoon of September 21, 1951 the town of Brighton, New York, a residential suburb of Rochester (population about 18,000), experienced a series of house explosions and fires--caused by a sudden increase in the pressure of gas in the mains and pipes leading into the houses. Sixteen houses were completely demolished and about 25 were heavily or slightly damaged. Two persons were killed and 24 were injured. The explosions and fires covered an area roughly a mile long by a half mile wide, and continued during a period of about two hours.

3. A mine explosion in West Frankfort, Illinois. One hundred nineteen miners were killed in an explosion in the New Orient No. 2 mine at West Frankfort, Illinois. The explosion occurred at 7:30 P.M. on December 21, 1951. Only five men in the immediate area of the blast survived, and one of these died two days after the explosion. The community, located in southern Illinois, has a population of about 11,000 and its major industry is coal mining.

4. Three separate airplane crashes in Elizabeth, New Jersey. Within the short span of two months, three airplanes crashed in the urban community of Elizabeth, New Jersey (population about 113,000). The first crash, which occurred on December 16, 1951, killed 56 plane passengers and injured one resident of the community. In the second crash, on January 22, 1952, a plane crashed into a three-story frame apartment building, setting it and two adjacent buildings afire. Twenty-three plane passengers were killed, six residents of the community were killed instantly, and one later died of injuries. Three other residents were injured. The third crash took place on February 11, 1952, when a passenger plane pancaked off the rear of a 52-family apartment building and landed in a playground. The rear of the apartment building burned and four residents were killed. Twenty-seven passengers and crew members of the plane also were killed, and a total of over 40 persons were injured. The NORC disaster team conducted interview studies after each of the three crashes.

5. An earthquake in Bakersfield, California. Bakersfield, California, with a metropolitan area embracing about 122,000 persons, experienced a relatively severe earthquake during the afternoon of August 22, 1952. Damage extended over 98 city blocks. Two persons were killed and 32 were injured. The heaviest damage was centered in the central business district.

Detailed reports on each of the disasters described above will be found in Appendix B of this report.[1] Since the present report is concerned primarily with the systematic analysis of the Arkansas tornado data, the remainder of this section will be devoted to a detailed description of the tornado disaster in White County, Arkansas. Occasional references to the findings contained in the smaller-scale field investigations will be made throughout the report. In general, however, the remainder of the report will be devoted to a presentation of the findings of the Arkansas study.

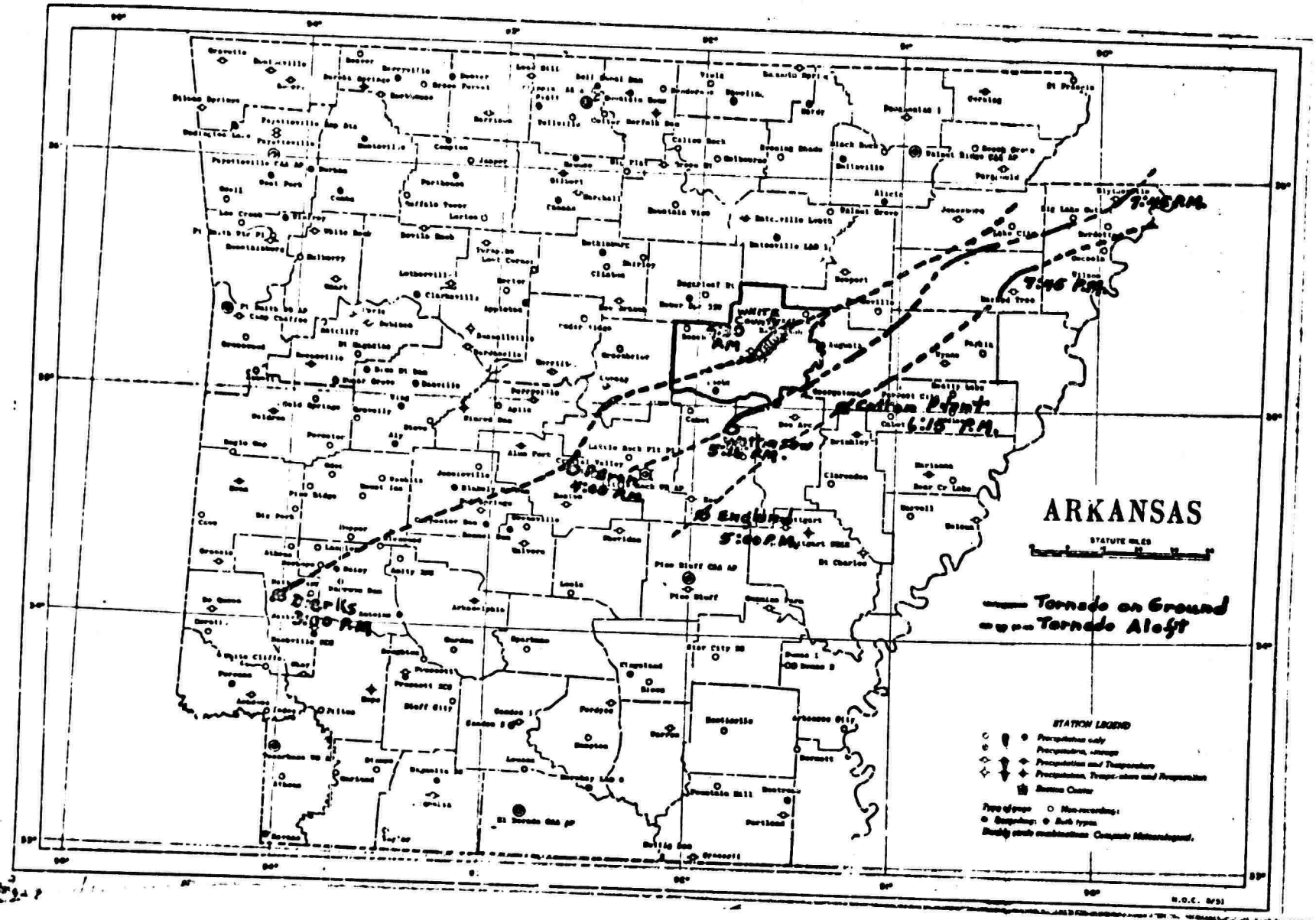
THE WHITE COUNTY, ARKANSAS TORNADO

On March 21, 1952, a series of devastating tornadoes struck in nine southern and south-central states.

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[1] Because of the possible general interest in their subject matter, five additional reports on events investigated by the NORC team have been included in Appendix B. These are: (1) A study of a plant explosion in St. Paul, Minnesota, February 8, 1951; (2) observations on a mock air attack in Chicago, October 8, 1951; (3) a report on a porch collapse occurring in Chicago, June 17, 1951; (4) a study of a carbon monoxide asphyxiation incident in a manufacturing plant in Chicago, December 8, 1952; and (5) an abstract of a Master's thesis on panic prepared by a member of the NORC team and based upon interview materials collected in our various studies.

CHART I - ARKANSAS TORNADOES OF MARCH 21, 1952



The series of tornadoes began when the small town of Dierks, in Howard County, Arkansas, was hit at 3 P.M. In a succession of strikes, the storm hit northeastward across nine Arkansas counties and into Missouri. By eight that night, the tornadoes had hopped the Mississippi River and struck six valley states. The Weather Bureau estimated later that on March 21-22, possibly a dozen different tornadoes, independent of each other, swept parts of Texas, Louisiana, Arkansas, Western Tennessee, Southeastern Missouri, Kentucky, Northern Mississippi, Alabama, and Georgia.

By storm's end material damage ran into multimillions, 231 persons were dead, 1,829 were injured (of whom 615 were hospitalized), 1,041 homes were destroyed and 3,030 were damaged.[1]

The state of Arkansas was the hardest hit. The tornadoes cut a swath of destruction throughout the entire state from the southwestern corner to the northeastern corner (see Chart 1). Nine counties were affected and at least eighteen separate communities in the state suffered some destruction, deaths, or injuries. Throughout the state, over 120 persons were killed, over 700 injured, and property and crop damage was estimated at nearly 7 million dollars.[2]

White County, Arkansas, suffered the greatest number of casualties and property damage of any area in the entire tornado region. The following two tables summarize the final statistics on deaths and injuries and property destruction and damage.[3]

Table 1-1

NUMBER OF DEATHS AND INJURIES IN WHITE COUNTY, ARKANSAS

Deaths and Injuries		Number
Total dead		46
Total injured	615	
Major injuries (requiring hospitalization)*		200
Minor injuries		415

* Length of hospitalization ranged from one day to three months.

[1] Data taken from The American National Red Cross, The Southern Tornadoes of 1952, Washington, D. C.: ARC 1546, September, 1952, p. 1

[2] Data derived from "Climatological Data: National Summary," Weather Bureau, U. S. Department of Commerce, Vol. 3, No. 3 (March 1952), pp. 71-73. This source presents a complete inventory of the communities and areas struck by the tornadoes, the time of impact, the width of the tornado's path, the number of persons killed and injured, and the estimated dollar value of property damage.

[3] These data are based upon official American National Red Cross records and were furnished by Mr. T. F. Desmond, Director, Disaster Services, American National Red Cross, Midwestern Area, St. Louis, Missouri, in a letter dated April 7, 1954. We wish to express our appreciation to Mr. Desmond and the American National Red Cross in making these data available to us.

TABLE 1-2

NUMBER OF BUILDINGS DESTROYED AND DAMAGED IN WHITE COUNTY, ARKANSAS

Type of Building	Number Destroyed	Number Damaged			
		Major	Minor	Superficial	Total
Dwellings	345	175	119	276	600
Farm buildings	240	125	15	10	150
Other buildings	73	50	23	8	81
Total	658	350	187	294	831

Most of the deaths, injuries, and property destruction was centered on four townships in the center of the County. The four townships and their areal size are shown below.

TABLE 1-3

TOWNSHIPS SELECTED FOR SAMPLING

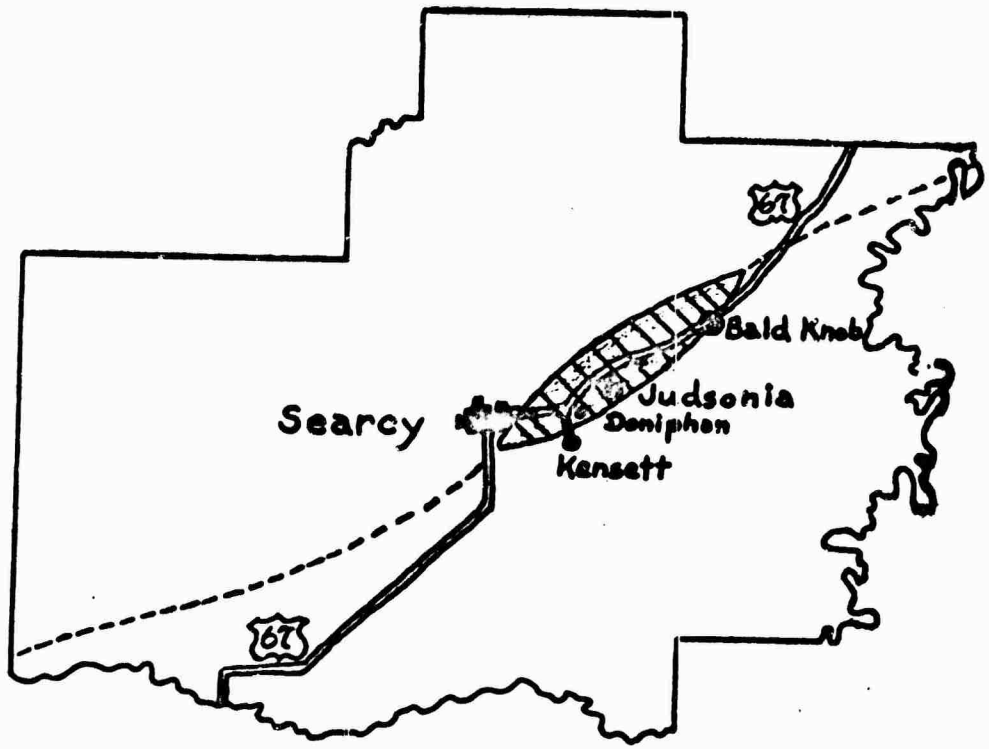
Township	Area in Square Miles
Harrison	56.1
Bald Knob	46.5
Kensett	14.5
Gray	43.1
Total	160.2

The area comprising these townships is roughly rectangular in shape, averaging about 15 miles in length in the East - West direction and about 10 miles in the North - South direction.

These four townships contained five communities which sustained a wide range in degree of damage--ranging from complete demolition to very light or no damage. The rural areas surrounding these communities likewise sustained varying degrees of physical involvement.

The town of Judsonia, with a population of 1,122 was almost completely destroyed; 35 persons were killed, nearly 400 were injured, and the community facilities were completely disrupted. The community of Bald Knob, having a population of about 2,000, was heavily hit in certain sections, but relatively untouched in others; 11 persons were killed and approximately 100 were injured. The small company-owned mill town of Beniphan (population about 300), had heavy

CHART 2
TORNADO IN WHITE COUNTY, ARKANSAS



property damage, a considerable number injured, but no deaths. The nearby town of Kensett, composed of about 800 persons, had heavy winds, but no serious damage (about 20 houses had light to heavy roof damage); it had no deaths or serious injuries. Finally, the town of Searcy, with about 6,000 residents, narrowly escaped the path of the tornado--which struck near the outskirts of the community--but experienced no major damage, deaths, or injuries. However, Searcy was highly involved in the post-impact phase of the disaster, since it served as the focal point for the organized medical and relief operations in the County. (See Chart 2 for the location of these communities and the path of the tornado in White County.)

METHODS OF THE STUDY

The Sample Design

Because of the heavy damage in the four townships indicated above and the fact that these townships provided the opportunity to select communities and areas on a continuum of physical involvement ranging from extremely high to very low, it was decided to concentrate the regular sample interviewing[1] in this four-township area, and to select respondents by random area sampling methods.

A tornado provides a number of special sampling problems. It tends to follow a highly erratic path--both its course and effect are determined to some extent by the topography of the area in which it is operating, as well as by meteorological conditions. Because of a tornado's erratic behavior, one area may be completely demolished, while another area immediately adjacent may be practically untouched. In view of this peculiar nature of tornado damage, the notion of a central focal point or epicenter of high damage with concentric zones of diminishing severity of damage surrounding it proved to be unworkable.

The only feasible way of approaching this problem was roughly to enumerate the number or proportion of structures which sustained a given degree of damage and the extent of deaths and injuries, and then rank towns by the degree of destruction. The four townships noted above, therefore, were selected as the universe for study and communities and rural areas within the townships ranked by degree of damage.

The sampling strata were determined by the criteria of degree of damage, township boundaries, and rural-urban division. One of the basic criteria underlying the sample design within the townships was the analytical need to have adequate representation of the heavily destroyed areas. If every dwelling unit in the four townships had been given equal probability of falling into the sample, there would have been too few respondents who had been exposed to injury or whose homes or other property had been destroyed. Hence, special strata of heavily damaged areas were established and dwelling units located in these strata were given especially high probabilities of falling into the sample.

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[1] The distinction between the "regular respondents" and the "special respondents" will be elaborated in a later section.

Within the strata selected, the sampling procedure followed the usual practices of area sampling. Within towns, a sample of blocks was selected to net an average of two cases per block. The dwelling units (including those completely destroyed) in the blocks were then pre-listed on the basis of their occupancy on the day of the tornado. A sample of the requisite size was taken by sampling systematically from the listed block. The rural areas were broken into identifiable segments using roads and other landmarks (rivers, streams, etc.) as boundaries. Estimates of the number of dwelling units in the segment were made on the basis of dwelling units indicated on the White County Highway map. The segments were then ordered by location (following a serpentine pattern) and segments were selected systematically with probability proportionate to the number of dwelling units in the segment. They were selected to average about five cases per segment.

Respondents within the selected dwelling units were selected randomly from persons aged 18 or over who were living in the household on the day before the tornado. (See Appendix A-10 for a copy of the listing procedures used by interviewers in selecting the respondents to be interviewed.) The sampling procedure used, in effect, pre-designated all respondents. Thus, the interviewer had no choice in the selection of the person to be interviewed; he had to locate and interview a particular respondent in the household. Although this method of sampling did pose serious interviewing problems (e.g., locating persons whose houses had been destroyed and who had moved out of the area), it insured that all segments of the population were properly represented in the sample (e.g., persons with all degrees of involvement, all educational, racial, religious, and socio-economic groups, those who were very articulate and willing to be interviewed and those who were relatively inarticulate and less willing to be interviewed, etc.).

A sample consisting of a total of 372 cases was drawn in the manner indicated above. Out of the total of 372 dwelling units assigned for interviewing, 10 were vacant the day before the tornado. Of the remaining 362 cases, interviews were completed for 342 (94 percent). This is a high rate of completion for a probability sample of any type, and is particularly high in view of the difficulties in tracing persons who had moved or been evacuated from the disaster-struck areas. In some cases, the interviewer had to travel 50 or more miles in order to locate a respondent.

Only seven cases out of the total of 20 cases which were not completed represented refusals to be interviewed. The following table indicates the number of uncompleted interviews and the reason for non-completion.[1]

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[1] Three additional cases were lost when one of the agencies used in transcribing the interviews accidentally erased three tapes.

TABLE 1-4

NUMBER OF UNCOMPLETED INTERVIEWS BY REASON FOR NON-COMPLETION

Reason	Number
Refused interview	7
Moved out of area	6
Dropped because respondent was interviewed as special informant	2
Respondent out of town during period of field work	2
Respondent too deaf to be interviewed	2
Respondent killed in tornado	1
Total	20

Special Informant Sample

In addition to the 342 regular sample cases, a total of 81 interviews were conducted with special respondents. The special informants were selected by making an inventory of all the formal and informal groups which performed rescue, relief, control, medical, mortuary, and information functions, and tracing the persons who played the major organizing, directing, or controlling role in the group and the persons who could provide the most detailed information concerning the operations of the group. This was done in several ways. An initial list of persons was formulated on the basis of names appearing in the newspaper accounts in Little Rock and in the various community newspapers throughout the area. Informal interviews were conducted with various government officials, relief agency personnel, etc., to determine who would be most likely to have an intimate knowledge concerning the various agency and group functions. Interviewers of regular respondents were instructed to be on the alert for persons mentioned as informal leaders by the regular sample cases and to report the names of these persons. The special respondents who were interviewed were requested to furnish names of other persons whom they knew to have played a vital role in the various disaster operations.

A master card file of organizations and persons was compiled from all these sources. The final selection of respondents from this file was based essentially on two considerations: (1) the attempt to obtain a complete coverage of the major formal and informal groups operating to relieve the various problems posed by the disaster and restore and rehabilitate the population; (2) and the attempt to obtain persons who could provide the most objective and intimate knowledge concerning the operations of the particular groups or agencies involved. The latter selection was based primarily on the number of cross-references made to the person by the various sources indicated above.

The special sample, then, is composed of interviews with officials of the Red Cross, Salvation Army, National Guard, State Police, and other relief or control agencies; with state and community government officials (representatives of the governor, mayors of the various communities, city councilmen, etc.); representatives of the various utilities companies (gas, electricity, telephone, etc.); doctors, nurses, and medical administrative personnel; ambulance drivers, clergymen, and morticians; "ham" radio operators; representatives of the newspapers, radio stations, and other mass communicational media; and informal leaders in rescue and relief operations of various types. In the case of large organizations--e.g., the Red Cross, the Salvation Army, hospitals, etc.--interviews were conducted with persons at the various levels in the structural hierarchy. Thus, for example, interviews with Red Cross Representatives included the director of disaster operations throughout the entire tornado-struck region, the directors in the various communities included in the area sampled, Red Cross case workers, and volunteers.

Nature of the Interviews

In all of the field studies conducted by the disaster team, the major goal of the interview has been to obtain a complete and exhaustive account of the person's objective and subjective behavior during the pre-impact, impact, and post-impact period. In addition, we wish to determine how his behavior was influenced by interaction with others, or, in turn, influenced others' behavior; and his observations and evaluations concerning his involvement and deprivations and the behavior of other persons, groups or agencies.

Since the essential purpose of the interview was to determine how the actor structured or defined the situation, an unstructured or non-directive approach was used. The interview usually opened with a broad question of the following type: "Tell me in your own words what happened," or "Tell me what happened to you in the storm (earthquake, explosion, etc.)." This initial question usually elicited a fairly lengthy account and enabled the interviewer initially to see how the respondent structured the event. The principle of minimal probing activity was used throughout the interview--i.e., the interviewer attempted to keep the respondent talking about his experience with little or no intervention on the part of the interviewer. The interviewer would use first such minimal activity probes as shaking the head, glances, nods, and meaningful silences, or the short verbal probes of the "uh-huh," "eh," "yeah," type. If these did not keep the respondent talking on the subject matter, the interviewer moved to the level of neutral questions which asked the respondent for elaboration and clarification (e.g., "You said you felt scared; would you tell me a little more about that feeling?" "How do you account for this feeling?; What thoughts ran through your mind at that time," etc.).

The interviewer had a schedule covering the major topics of interest; but the schedule was not used so long as the respondent spontaneously covered the subject matter. Only after the respondent had delineated his own structuring of the event did the interviewer introduce questions from the schedule.[1]

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[1] For a more concrete picture of the interviewing technique, the reader should refer to the transcripts of eight Arkansas interviews contained in Appendix A.

For the Arkansas study, two separate schedules--one for the regular random sample of respondents, the other for special informants--were formulated in the field. (Copies of each of these are contained in Appendix A-10). The regular respondent schedule was adapted from the previously-formulated master questionnaire contained in "A Plan for the Study of Disasters," (see Appendix A-9), on the basis of pre-test interviews with approximately 70 persons. These pre-test interviews enabled us to revise and adapt the questions to the particular situation and problems created by the tornado, and to the types of respondents who were to be interviewed. Special care was taken to revise the questions to coincide with the psychological order in which persons discussed the various aspects of the disaster and to adapt them to the language and idiomatic expressions used by the local populace. The questions on the regular respondent schedule were designed to get as much information as possible on the following topics:

a. The nature of the individual's involvement in the disaster--both physical and psychological--and the complete sequence of his overt and covert behavior during the pre-crisis, crisis, and post-crisis phases of the disaster.

b. The extent to which the respondent, his family, relatives, and his friends suffered injury, personal or property losses, or deprivations, and his attitudes and feelings regarding these.

c. The observations that the person made concerning other people's behavior (family, neighbors, children, persons who lost self control, persons who performed unlawful acts, persons who took a leadership role, etc.), and his feelings and thoughts concerning this behavior.

d. The person's observations and attitudes concerning the rescue, relief, medical, and control efforts and activities.

e. The person's previous experience in disasters or crises and the relationship of this experience to his behavior in this disaster.

f. The personal and social changes resulting from the disaster (physiological, psychosomatic reactions, changes in values and self-conception, changes in social relationships, etc.).

g. The major sources and adequacy of the information available to the person.

h. Background and factual data on the respondent (education, family composition, marital status, religion, occupation, income, etc.).

The special respondent schedule was formulated on the basis of pre-test interviews with officials from various relief, control, and communication agencies involved in the disaster. It was designed to provide us with expert and informed accounts of the disaster; complete information on the role that the formal and informal agencies played in the disaster; the types of rescue, relief, and control problems that arose, and the adequacy of the disaster plans, personnel, and equipment in dealing with these problems. Specifically, the schedule covered

the following topics:

a. The actions taken by the particular respondent in the disaster--i.e., the complete chronology or sequence of his behavior.

b. The role that the organization, agency, or group with which the respondent was affiliated, played in the disaster--in relation to its disaster plans, previous experience with disasters, the particular situation which it faced, and the formal and informal working arrangements with other agencies.

c. The number and types of personnel and facilities which the organization had available for use in the disaster, and their adequacy for the problems which arose.

d. The types of problems which the organization encountered in the administration of its services, and the methods used in coping with these problems.

e. The knowledge gained from this disaster, the qualities which they associated with good disaster leadership, and their recommendations and proposed solutions to the problems that might arise in future disasters.

Tape recorders were used to obtain a complete transcript of the interviews. In their tape-recorded form, the interviews ranged in length from approximately 15 minutes to nearly four hours, with an average length of about one and one-half hours. The typewritten transcripts of the interviews average 29 pages per interview.

Description of Field Operations

Field work for the Arkansas study covered the period from March 25, 1952 to April 18, 1952, a total of 23 days. Field operations were started on March 25, when an advance team of four members went to Little Rock and began a preliminary survey of the disaster areas in the state, conducted background and pre-test interviews, obtained clearances with state and local officials, and began recruitment of additional interviewers in the Little Rock area. Within two days they were joined by 16 additional staff members and interviewers from Chicago. Together with six interviewers recruited in the area, the total field staff comprised 26 members.

The period from March 28 to March 31 was used to recruit and train the new interviewers, select the sampling area and prelist the dwelling units, conduct background, practice, and pre-test interviews, and to formulate the regular and special respondent schedules. This phase of the operation was conducted from headquarters in Little Rock, primarily because of the difficulty of obtaining living quarters in the sampling area (especially during the week immediately following the tornado), but also because of the greater accessibility of interview recruits and of facilities for reproducing schedules, instructions, etc. Moreover, Little Rock served as a nerve center for a great deal of the relief

and central operations in the various disaster-struck areas and this period provided the opportunity to interview persons who were exercising overall supervision in the relief and rehabilitation operations. Many of the disaster victims also were located in Little Rock hospitals, and most of the pre-test interviews were obtained by interviewing these hospitalized patients.

On April 1 and 2, final training and preparations were completed, and the team moved to Searcy, Arkansas, where field headquarters were set up at Harding College. Interviewing on the regular sample got under way on April 3, and was completed on April 17. Interviewing of special respondents was carried on simultaneously and these were completed by April 18, the final day of field work. During the whole period of field work, the team worked a seven-day work week, and averaged nearly 12 hours of work per day for each interviewer. Supervisory personnel frequently worked 18 to 20 hours per day.

Respondents in the sampling areas were exceptionally cooperative in agreeing to be interviewed. Only a few isolated cases of resistance to the interview were encountered, and these were usually overcome when the study was explained more fully. As indicated in a previous section, there were only seven persons out of the total regular sample of 372 who refused to be interviewed; and there were no refusals among the special respondents who were selected. In order to explain the presence of the team in the several communities and also to dispel any mistaken notions concerning the study, a news dispatch was prepared for publication in the major local and county newspapers (for a copy of this dispatch, see Appendix A-10). A pamphlet which explained the nature of the study in general terms was prepared and printed for distribution to the respondents. (A copy of this pamphlet was given to each respondent when the interview was completed. See Appendix A-10 for a copy.) Both the newspaper article and pamphlet proved helpful in eliciting the cooperation of the respondents.

The approach to the interview that has been used throughout the several field studies conducted by the disaster team is of the following nature: The interviewer usually introduces himself as an employee of the National Opinion Research Center which is affiliated with the University of Chicago--and explains that our purpose in doing this interviewing is "to learn from the experiences of people who have been through these things so that other people can be better prepared in case something like this happens to them," (or words to that effect). This approach--that persons who have suffered a disaster can help others who might have to suffer a future disaster--consistently has proved to be effective in eliciting the cooperation of persons.

In 1950, when the original disaster plan was formulated, and prior to actual field work, there was some doubt concerning the willingness of disaster victims to be interviewed. However, the experience of four years and nearly 1,000 interviews with persons in over 70 different disaster or crisis events has eliminated all doubt concerning this point. Contrary to what might be expected, we have found that persons who experienced a disaster, if anything, are less resistant and more cooperative than usually is found in surveys or field studies dealing

with more conventional subject matters. Refusals to be interviewed have been uniformly low in all the field investigations.

The use of tape recorders was also seriously questioned prior to their actual use in the field. Again, however, we have found no evidence to indicate that they inhibit rapport. On the contrary, with proper usage, they usually enhance the rapport of the interview situation, since they free the interviewer from tedious note-taking and permit him to observe the respondent and concentrate on what he is saying. Their use, however, does require the addition of a few special techniques to the repertoire of field interviewing:

Foremost is the ability of the interviewer to take for granted that there willbe no resistance (the expectation of resistance on the part of the interviewer frequently becomes converted into respondent resistance). An additional minor, but extremely useful, ability is that of being able quickly to spot the nearest electrical outlet while engaging in casual conversation with the respondent. In practice, we have found that a matter-of-fact approach is best:--The interviewer simply proceeds to set up the machine and plug it into the nearest electrical outlet while engaging in pleasantries with the respondent. If he does not spot an outlet, he casually inserts a "by the way, where is the nearest outlet" remark and proceeds with the set-up of the recorder.

A relatively important point concerning the use of the recorder during the interview should also be noted:--It should be placed in as inconspicuous a location as possible--preferably hidden from the respondent's view behind a chair, sofa, etc.--since the turning action of the reels may provide a distraction.

One sidelight on the use of the recorder might be noted:--In over 600 tape recorded interviews throughout the country, only one respondent insisted upon payment for the electricity that had been used. This was an Arkansas respondent of rather modest income but immodest manners who demanded that the interviewer pay him two dollars for the electricity used in an interview of slightly over one hour. The interviewer protested mildly that the recorder could not have used this much electricity, but the respondent was adamant. To avoid imperiling the good relations between the field staff and the community, the interviewer paid!

Analytic Techniques

After returning from the field each of the tape-recorded interviews was transcribed into typewritten form. The typewritten transcripts were then checked against the original tape-recording by members of the disaster team, and any

necessary corrections were made on the typescript.[1]

As will be seen in the eight sample interviews included in Appendix A, the data contained in the interviews are voluminous and extremely complex. The free-flowing, non-directive nature of the interview materials posed a number of rather formidable and unique problems of analysis. First, the systematic analysis of non-directive interviews has rarely been attempted on such a large scale. Although psychiatrists, clinical psychologists, and others have used non-directive techniques extensively, such studies usually have been limited to a relatively small number of interviews. Non-directive interviewing techniques, of course, have been used in larger scale studies, but they normally have taken the form of individual questions included within a more structured schedule or questionnaire. Hence, there existed no precedent for handling non-directive materials in large volume.

A second problem of analysis concerned the subject matter itself. Although there is a voluminous literature concerned with various facets of human behavior in disasters, crises, and stressful situations, there exists no comprehensive unifying theory or set of concepts which enables an investigator to tie the various aspects together into a comprehensive, meaningful whole. On the contrary, the literature is characterized by a vast heterogeneity of limited theoretical speculations, divergent and conflicting basic assumptions, and uncontrolled empirical observations. Following from these, there exists no generally-accepted terminology for conceptualizing or describing the various behavioral manifestations found in disasters or other crises. To take only one obvious example:--One of the concepts frequently associated with disasters and other crisis events is "panic." This term, however, is used with such a multiplicity of referents by various investigations that it has no general research value.[2] Similar conflict and heterogeneity in usage can be found in virtually all the other terms or concepts used in the disaster literature--e.g., the terms "aggression," "scapegoating," "resentment," "apathy," "shock," "trauma," "anxiety," "fear," etc.

In preparation for the analysis of the data, the following steps were taken:

a. Exploratory reading of the disaster literature: During the development and various phases of the disaster project, a comprehensive bibliography on disasters consisting of over 2,000 references was developed. Nearly 200

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[1] Transcription time averaged seven hours and 32 minutes per interview, or over six hours of typing time for each hour of recording. Thus, the total typing time for all the Arkansas interviews required over 3,008 hours. The checking of the typewritten transcript against the original tape to insure accuracy of the final protocol required an average of three hours and 31 minutes per interview, or a total of about 1,500 hours.

[2] For an attempt at a clarification of the concept of panic, see: the abstract of Quarantelli's thesis, A STUDY OF PANIC: ITS NATURE, TYPES, AND CONDITIONS (Appendix B-10).

of the more pertinent items in the literature were carefully abstracted. This literature was carefully screened for materials which would suggest problems, hypotheses, and modes of analysis.

b. Staff conferences: Conferences within and outside the staff were held in order to work out a comprehensive analytic scheme to cover the problems and hypotheses to be tested and to work out methods for approaching the data.

c. Practice code-building and coding: To familiarize the staff with the nature of the interview materials, their potentialities and limitations, several hundred interviews were studied. Preliminary codes were built in a number of areas and the codes tested by actual practice coding of the interviews. Tests of reliability--i.e., the measure of agreement among different coders using the same data--were conducted to determine the feasibility of using various types of codes.

Development of Code Structure

Partly by accident, but largely by design, the staff which worked on the analysis of the data represented quite varied viewpoints and theoretical orientations. As noted above, the literature in the field of disaster behavior does not contain any comprehensive unifying theory or system of classification. Consequently, there were, at least in theory, an extremely large number of ways of structuring the interview data available. This fact was (almost painfully) obvious in the initial stages of the analysis. Starting with different theoretical orientations stemming from differences in training and background, almost every member of the staff found, in the literature on disaster, support for his (or her) particular viewpoint. Consequently, each staff member had a different conception of how the data should be analyzed--and these conceptions were advocated with considerable intensity.

As an experiment, it was decided to have each of the staff members (except the director and associate director) develop independently a code structure for one segment of the disaster experiment--behavior during the impact and immediate pre-impact periods. Comparison of these code structures indicated differences consonant with the previously held positions of the analyst. More important than these differences, were the substantial agreements. The code structures differed more in emphasis and detail than they did in general orientation. Furthermore, the differences were, in large part, complementary rather than contradictory--i.e., a code structure developed by a given analyst differed from the other code structures in containing aspects not covered by the other codes more than it did in presenting a different way of viewing the same behavioral aspect.

On the basis of the initial codes for pre-impact and impact behavior prepared by various members of the staff, a single preliminary code was developed, incorporating the general concepts common to the initial codes plus those features of the individual codes which appeared to have general significance. This preliminary code was then used to code a few of the interviews and revised on the basis of these codings.

With modifications in the interests of economy, this system was used to develop preliminary code structures for the other segments of the disaster experience. For these other segments, the analysts worked in groups of two or three (the third member of the group being the director or associate director) in developing the initial code structure. This initial code was tested by coding a few interviews and then revised, where time permitted, by a general staff conference; in other cases, the revision was done by the analysts who had originally developed the code, on the basis of the comments and suggestions of the other staff members.

After the preliminary code structures were completed, 30 of the interviews were selected at random for a trial coding. Each of these 30 cases was coded independently by two of the analysts. Agreements and disagreements in the two codings of the same case were then tabulated. The frequency with which each code category was used was also tabulated. Records were kept of the time required for each coding. Since the time records for the first cases coded indicated that the time required for coding a single case might exceed two man-days, an experiment in the use of three alternative coding techniques was incorporated in the coding of the later cases.

The trial coding indicated that:

a. The length of the original code was too great for the resources and budget available. While there were indications that one of the three alternative coding techniques would permit substantial savings in the time required for coding, these savings would not be sufficient to bring the total job within the necessary budgetary limits.

b. Some categories included in the original code required discriminations which it was not in practice, possible to make.

c. For some categories, it seemed likely (on the basis of the coding disagreements for the sample of 30 interviews) that the interviews would not report the behavior in a form which would permit reliable coding.

Except for the question of length, the difficulties in the preliminary code seemed to be matters of detail rather than of general structure--i.e., the preliminary code structure seemed, in general, to be workable and adequate to the purposes of the study, but to be of excessive length. The preliminary code was first revised to eliminate the problems noted under (b) and (c) above. After this revision, the code was reviewed by the entire staff and its volume was cut drastically. The criteria used in making the cuts were:- (1) importance to the purposes of the study of coding the category (or variable); (2) the likelihood (on the basis of the trial coding) of the interviews yielding data pertinent to a particular category under consideration.

Coding the Interviews

The interviews were coded by the staff analysts, supplemented by three graduate students in sociology. The staff analysts had developed a thorough

familiarity with the code in the course of developing and testing it. The supplemental coders were individually trained by the associate director for the project and, during their first week all of their coding was checked by him.

Each of the regular interviews from the Arkansas tornado was completely coded twice. The two codings were by different analysts working entirely independently.[1] In so far as possible, the second coding was done as soon after completion of the first coding as possible. As soon as both codings were completed, the two analysts compared their results. Where the codes assigned for any category disagreed, the two analysts rechecked the interview transcription and jointly decided upon a final entry.[2]

As a result of the improved coding techniques adopted and of the extensive reduction in the number of categories in the code, coding time per case averaged somewhere between six and eight hours. While this may appear to be a considerable expenditure of time, the length of the interviews was such that the time required for even a cursory reading would probably average over an hour. The coding process involved two readings of the interview by each coder. Since the order in which different aspects of a respondent's experience were presented varied tremendously from interview to interview,[3] it was first necessary to read the entire transcript once, noting the page locations of information pertinent to each of the major areas of interest to be coded. The passages noted were then consulted as each variable was coded--this second step constituting, in effect, a meticulous second reading of the entire interview. In addition to the four readings (two by each coder), the coding of an interview involved referring to the code outline to determine the proper categories[4] and entering the code symbol in the proper position on the code sheet; comparison of the two codings; and consultation between the two analysts (and rereading of parts of the interview) to reconcile discrepancies in coding. Considering the magnitude of the job, the speed ultimately attained by some of the analysts (less than four hours per case for two codings and reconciliation) was not short of phenomenal!

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[1] The codes were entered on separate code sheets, and neither one of a pair of analysts assigned the same case knew how the other one had coded the case, until both had completed it.

[2] The final entry was usually one of the codes originally assigned. In some cases, however, re-examination of the interview led to assigning the case to a category differing from either of the original codes.

[3] Frequently a particular aspect--such as the respondent's actions immediately prior to the tornado--would be mentioned in somewhat different terms at three or four places during the interview.

[4] In general, the code outline was too voluminous to be committed to memory, although one or two of the analysts practically accomplished this feat.

Tabulation Problems

The major purpose of using probability sampling in this study was to permit generalisation of the findings to the entire population affected by the tornado. Practically all of the other studies of disaster (including our own previous studies) obtained data from relatively few respondents. Since individual differences in reaction to a disaster situation are large, it is difficult (if not impossible) to what extent the findings from a small sample represent the distribution of reactions in the entire population affected. Furthermore, selection of respondents in disaster studies has usually been determined on the bases of availability, verbal facility, and vividness of experience, rather than from the standpoint of attempting to represent a population. Sampling in this field has, in general, been along the lines of good journalistic practice--i.e., find informants who have been through a newsworthy experience (or who were eyewitnesses), try to get a good story from them (concentrating on those informants who can give the most detailed and picturesque accounts), and select from the information collected those facts which, in your judgment, most clearly indicate the essential facts and mechanisms involved.

While this technique may give an excellent picture of the experiences and reactions of the persons selected for interview, it does not, necessarily, give any picture at all of the population. Most people are not good informants from a journalistic standpoint. Of any large group of people who have gone through a disaster, most will give confused, poorly organized, unassimilated stories. Trying to disentangle the mixed-up chronology and inconsistent descriptions in such accounts is an awe-inspiring task. It is little wonder, therefore, that previous studies of disaster have preferred to rely principally upon those relatively literate respondents who are able to give a straightforward account of their experiences.

Unfortunately, the articulate respondent may differ from the general population affected in major respects. The very fact of articulateness probably indicates an ability to organise experiences more adequately and, possibly, to adjust to the shock of those experiences more rapidly. Furthermore, the respondent who is in physical and emotional condition to describe his experiences is frequently one who was at the periphery of the disaster--in a position to observe (from his own limited viewpoint) what happened but not to experience the full physical and emotional impact of the event. A disaster is essentially undiscriminating in its choice of victims. A tornado, a bomb or an earthquake does not stop to select the more (or the less) articulate. Any sampling procedure which does not show the same random lack of discrimination as the disaster itself is, therefore, almost foredoomed to misrepresent the population.

Recognising the dangers of over-generalisation from a sample selected in the manner described above, the NORC in its studies of disaster tried to select respondents who had experienced all degrees of intensity of the disaster impact and who, in so far as possible, would represent a range of experiences and characteristics. Such selection is, however, extremely difficult to control. While unbiased sampling procedures are available, they are

expensive and difficult to apply. It is likely, therefore, that our Arkansas tornado study is the only study of disaster (with the exception of some of the USBSS studies) which has even attempted to sample a definable population on a probability basis.

As noted above, the sample design used in the Arkansas tornado study involved giving some "segments" higher probabilities of being selected for the sample than others. In general, probabilities proportionate to the amount of damage done by the tornado, were assigned to a given area and, within the area, segments were drawn with equal probability.

As a result of this sample design, different areas were not represented in the sample proportionately to their populations. While the aim was to assign the same probabilities to all households within the impact areas and also to all households within the non-impact areas, this was not entirely achieved.

TABLE 1-5

PROBABILITIES OF SELECTION FOR HOUSEHOLDS IN EACH OF THE AREAS IN THE SAMPLE

Area	No. of Sample Cases	Probability of Selecting Household in This Area
Areas in Tornado Impact		
Juoseola	92	1/3
Boldingville	8	1/2
Deniphan	22	1/2
Rural Segments		
J06	6	1/3
J08	6	1/2
J09	17	2/5
Areas Not in Tornado Impact		
Searcy	79	1/20
Kensett	16	1/15
Rural Segments		
B01	5	1/10
B05	3	1/12
J01	3	1/50
J02	4	1/20
J03	4	1/20
J04	4	1/40
J05	4	1/25
J07	1	1/50
K01	4	1/15
K02	2	1/9
S01	5	1/40
S03	3	1/15
Areas Partly in Tornado Impact		
Bald Knob	30	1/15
Rural Segments		
B02	6	1/9
B03	5	1/9
B04	5	1/9
S02	5	1/25
Total	339	----

To accomplish the objective of obtaining results applicable to a popu-lation (rather than to only the cases interviewed), the existence of unequal

probabilities of sample selection requires that the cases be weighted in the tabulations--the weight for a case to be proportional to the reciprocal of the sampling probability for the case. For the cases from communities or areas where the entire area was hit by the tornado, the variation in sampling probabilities is so low (1/3 to 1/2) that weighting would seem unnecessary.[1] However for the non-impact areas, the range in probabilities is so extreme (1/50 to 1/9), that use of the unweighted data would entail an appreciable risk of substantial bias. An additional problem is created by the areas which were partly in the path of the tornado. Impact cases in these areas were selected with substantially lower probabilities than obtained in those areas entirely within the tornado path. These cases could, of course, have been weighted for purposes of tabulating them with the other impact cases. Weighting would, however, increase somewhat the problems of tabulation and, more important, would increase the sampling variance and make interpretation of the results somewhat more difficult. In some cases, after weighting, single individuals from areas partly in the tornado's path, would be counted as five percent of the total sample of impact cases. Thus, the presence or absence of one such case in a category which otherwise accounts for a small percent of the cases might markedly change the conclusions. Since the bulk of the analysis would be devoted to the impact cases, having such a large weight placed on the behavior of a single case seemed most undesirable. A further disadvantage to including these cases was the fact that they came from areas near the periphery of the tornado and were, therefore, likely to have had experiences differing widely from those of the bulk of the tornado victims. This also would mean a substantial increase in variance.

There was a total of 24 cases from the parts of Bald Knob and Rural Segments B02, B03, B04 and S02 which had been hit by the tornado. In view of the difficulties described above, it was our feeling that the bias resulting from dropping these cases would be less serious than the increase in variability which would result from their inclusion, and those 24 cases were, accordingly, omitted from the tabulations.

Dropping the 24 cases, left in the sample 151 impact cases and 164 non-impact cases. Weighting presented some mechanical problems. The probabilities involved were not integral multiples of each other and, in any event, separate tabulation for cases with differing probabilities and hand weighting would have been a tremendous nuisance. It was, therefore, necessary to do the weighting by replicating the punch cards. Rather than replicating all cards for cases in areas with sampling probabilities of less than 1/9 (the largest sampling rate for the non-impact households), it was decided to replicate for probabilities less than 1/15 and subsample for cases with probabilities greater than 1/15. For example, of cases with probability 1/9, three out of five were retained for the sample and the remainder eliminated; in Searcy, where the sampling probability was 1/20, one-third of the cases were duplicated.

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[1] The bias which can result from neglecting these minor differences in probability is undoubtedly minor.

Of the cases remaining after the above eliminations, one was a respondent from Searcy who happened to be in Judsonia at the time of impact and 12 were cases from the impact areas who were outside the impact areas at the time the tornado struck. Since the situations and experiences of these 13 respondents are markedly different from that of the other cases from the areas from which they came, and also different from that of the respondents in the areas in which they were during impact, it did not seem desirable to include them in the tabulations for either the impact or non-impact cases. There were too few of these cases to permit separate analysis of them and these 13 cases were, therefore, also omitted from the tabulations.

Thus, 24 impact cases were omitted to avoid weighting problems; five cases were dropped in subsampling the non-impact respondents; 12 cases from impact areas were omitted because they were not in the tornado impact; one case from a non-impact area was dropped because he was in the tornado impact. This left 297 interviews actually used in the tabulations. Of these, 139 were for impact area respondents and 158 were for respondents from non-impact areas.

The preliminary tabulations indicated a large number of categories involving a very small proportion of the cases. While these categories may have been satisfactory for coding purposes, they could not be used, as such, in the analysis. These categories were, therefore, combined with other related categories in all subsequent tabulations.

RELIABILITY OF THE DATA

As noted above, the Arkansas tornado study represents one of the very few attempts to study a disaster systematically. It covered (in so far as was feasible) all aspects of human behavior before, during, and after the event. The respondents were selected in a manner which permits generalization of the findings to the entire population of the areas affected. In the interviewing and the analysis, every effort was made to achieve a high level of quality.

In a real sense, then, this study can be considered a unique contribution, methodologically and substantively, to the field of disaster research. Despite this, there are substantial limitations on the data which must be borne in mind in reading the remaining chapters of this volume. In a sense, these limitations are also part of the merits of the study--the limitations in question are also present in all other studies in the field, but, in the present instance, the design of the study permits us to analyze its weaknesses and to estimate the magnitude of some, at least, of the components of error. It should be emphasized, then, that the considerations outlined below are not confined to the present study --they affect all studies in the field, but, in most cases, the effect is totally unknown, and, in fact, unknowable.

Wherever feasible, the discussion in the following chapters tries to indicate the limitations of the particular data presented and the qualifications on the interpretation of these data. There are certain limitations which apply

more generally and, to avoid constant repetition, these are outlined below. The major (general) sources of error are:

1. Inaccuracies, distortions and omissions in the original interviews

2. Defects and biases in the classification scheme (code structure) used.

3. Errors in classifying ("coding errors")

4. Sampling error.

Defects in the Interview

All interviewing is, almost inevitably, limited by imperfections in recall and in communication. Respondents frequently cannot recall accurately (or never knew) some of the information needed. Where the respondent does possess the desired information, it only becomes available to the analyst if:

a. the interviewer conveys to the respondent the exact nature of the desired information,

b. the respondent is able to convey what he knows unambiguously and accurately, and

c. the interviewer can record the information obtained accurately and in a manner intelligible to the analyst.

Problems of recall--of availability of the desired information to the respondent--vary, of course, with the nature of the data sought. Information on intentions, present attitudes, etc., is, by definition, free of recall bias, and information on age, birthplace, education, etc., (while subject to some memory error) is probably reasonably accurate from this standpoint. On the other hand, what one did, felt, saw, heard, etc., at some past period is notoriously subject to gross erosion and distortion over time. In the present study, the recall problem is particularly acute because much of the desired information relates to precisely the type of data which is most susceptible to memory distortion. Furthermore, the material to be recalled involves experiences which occurred at a time of great emotional stress with its accompanying distortions of perception. To expect absolute accuracy in what a person says he did, while he and his family were being buffeted by a tornado, is most optimistic. To expect accuracy in what he says he felt is more than optimistic--it scales the heights of pure, naive, enthusiasm!

If one adds to the difficulties involved in the original perception of the experience, the effects of an extended interviewing time period and of discussions with relatives, friends and neighbors--one might well despair of obtaining any information of value.

The USSBS studies, invaluable as they are in many respects, are sharply limited in their findings on human behavior and reactions by the extended period which elapsed between the event and its reporting. For this reason, the NORC disaster research has emphasized the extreme importance of obtaining the data as soon as possible after the event. To some extent, the Arkansas study was weaker in this respect than our other studies, since the more elaborate planning required, made necessary a somewhat longer period between the event and the interview (i.e., full-scale interviewing did not begin until 11 days after the tornado and was not completed until four weeks after the event).

Hampering as are these "recall" problems, they should not be over-emphasized. There are countervailing influences. While there is evidence in the psychological literature of perceptual distortion under emotional stress, there is also evidence of the influence of such stress in heightening perceptual acuity and providing tremendous reinforcement to the fallible human memory. Even minor happenings in time of stress may stand out with amazing clarity long after the major occurrences of less eventful periods have vanished into the limbo of forgetfulness. It is true that these recollections are highly selective in nature, yet there is merit to the view that what is recalled is significant.

Whatever may be the facts of recall in disaster situations, it is clear that at least some of the data reported are valuable. The main caution is that these data not be interpreted too literally. They should be taken as indicative, not conclusive; as working hypotheses rather than accepted fact. The reader who examines these data with their source in mind should find them rewarding but a literal interpretation can be only misleading.

On the side of communication, the non-directive, recorded interviews used, largely minimize the problem of communication from interviewer to respondent and the problem of recording the response. The problem of the respondent's own communication with the interviewer (and directly, in this case, with the analyst) is aggravated. Since this type of interview leaves the situation largely unstructured, the respondent must adopt his own frame of reference. Consequently, the replies obtained contain innumerable references to events, people, places, experiences, etc., which may mean one thing to the respondent and another thing to the listener. Furthermore, terminology and emphasis vary from one respondent to another, and aspects fully treated in one interview are covered inadequately, or not at all, in another.

These problems, again, are not insuperable. The reader need only remember that failure to report a phenomenon is not conclusive evidence of its absence. In as far as is pertinent and feasible, the tabulations in this volume state both the percentages of respondents reporting a given type of behavior, experience, or reaction and the percentage not mentioning anything in this area. In many cases, failure to mention an occurrence is presumptive evidence that it was absent (either because this point was the subject of specific questioning in the interview or because of the nature of the material). In other cases, the

proportion mentioning a given datum is so large that the "no report" problem vanishes.

Defects and Biases in the Classification Scheme

Errors in this category are, by their very nature, difficult for the analyst to measure--or, even, to detect. They represent limitations of his own thinking and, while painfully obvious to others, are completely invisible to himself.

The team method of code construction used in the present study did, in large measure, bring to our attention the deficiencies and biases of our own orientations. While this experience in itself might provide data for an elaborate study, analysis of it would be out of place in the present context. It will be sufficient to note that the interplay of varying viewpoints, to some extent, provided greater balance to the study than might otherwise have obtained. This interplay, however, indicated most clearly the large variety of viewpoints not represented on our disaster staff. The inadequacies and omissions of theoretical structuring will, undoubtedly, be more obvious to the reader than to ourselves, so that further comment on this point is superfluous!

Coding Error

As noted above, each interview was coded independently by two analysts, who then compared their results and assigned a final ("reconciled") code in cases of discrepancy. While the process of survey analysis has received less research attention than the field work phases, there is ample evidence of both variability and bias in the coding of even relatively simple "factual" data. The coding technique adopted is predicated on the assumption that, in independent codings, the probability of random concurrence of error is slight. While this assumption is warranted, it should be noted that the method does little to correct nonrandom concurrence of error! To the extent that mutual experience, and similarities in background and training, lead coders to the same biases of interpretation, independent codings will not detect error. To some extent, the experience of the coders in "reconciliation" has the unfortunate effect of reinforcing the tendency toward common bias.

In coding the Arkansas tornado interviews, records were kept of the codes assigned in the original independent coding and of the reconciled code finally assigned.[1] Tables 1-6 through 1-10 are tabulations of these data for a few

[1] Records for the interviews done first were not kept adequately. However, the coding assignments were made in such manner that cases were coded in a random order (to avoid concentration of practice and "fatigue" effects on particular types of interview or on the interviews from a particular area) and, as each coder completed one case, he was assigned the next case available in this random ordering. Thus, any temporal subset of the cases coded represents a random sampling of all cases and of all coders. It is not, of course, random with respect to the effects of practice or "fatigue."

selected variables. While the variables selected are not necessarily representative of all variables covered by the study, they give some indication of the range of coding variance present.

It should be noted that the figures on coding discrepancies represent absolute not relative magnitudes. Thus a discrepancy of 11 percent in a category having 62 percent the proportion of codes assigned means the difference between 51 percent and 73 percent (not 55 to 69 percent).

It will be noted that the discrepancy between the two codes originally assigned is, in many cases, quite large. There is, however, great variation in this respect. It should also be noted that some of the discrepancies represent relatively minor errors--differences between two code categories of the same general class which were, in many cases, combined in the final tabulations.

As would be expected, the discrepancies between the two original codes and the final code, are considerably smaller than those between the two originally assigned codes. While the percentage of discrepancy between original and final codes is substantial in many instances, it should not be assumed that this is the coding error present in the final codes. That error could only be separately measured by doing (at least) four codings and two reconciliations and comparing the two reconciled codes. Such a procedure was, obviously, an unwarranted expense for the present purposes and was not undertaken.[1] In as far as the errors in the final codes were variable from case to case, they are included in the estimates of sampling errors presented below (see Table 1-11). "Constant errors" (i.e., uniform biases for all coders with respect to all cases) are not included in estimates of sampling error and could only be measured by a study designed specifically for this purpose.

Sampling Error

The measurement of sampling error is probably the area in which the most definitive results are possible. Since the sample design used in this study involved known probabilities, the sampling variation can, of course, be estimated from the sample results themselves (although such estimates of error are themselves subject to sampling error).

In the present study, the design involved clustering of the sample cases. Consequently, the ordinary variance formulae for simple random sampling of independent cases are not applicable. Computations that correctly reflect the actual sampling probabilities are much more laborious than those for the simple random sampling situation. Consequently, such computations were completed for

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[1] The double coding procedure actually used, was adopted to improve the accuracy of the substantive results and the methodological data are by-products.

TABLE 1-6

DIFFERENCES BETWEEN CODERS AND BETWEEN ORIGINAL AND FINAL CODES FOR "STORM-RELATED CUES PERCEIVED IN PRE-IMPACT"*

Type of Cue	Percent of Cases Classified in Specified Category		Percent of Discrepancies	
	In Original Coding	In Final Coding	Between Two Original Codings	Between Original and Final Coding
Funnel Cloud(s), thunder, lightening	1	2	1	--
Color, texture of atmosphere	62	64	11	5
Rain	27	31	12	7
Darkness	51	55	17	8
Roaring	27	33	15	7
Wind, wind sounds, wind effects	31	32	12	6
Psysiological reactions to temperature, pressure	70	76	23	12
Actions or behavior of persons	10	12	7	4
Lights going out	1	1	2	1
Other cues	43	49	14	7
	6	8	8	4

* Percents based on 242 cases.

TABLE 1-7

DIFFERENCES BETWEEN CODERS AND BETWEEN ORIGINAL AND FINAL CODES FOR "PRE-IMPACT AND IMPACT AFFECTIVES REACTIONS"*

Type of Reaction	Percent of Cases Classified in Specified Category		Percent of Discrepancies	
	In Original Coding	In Final Coding	Between Two Original Codings	Between Original and Final Coding
Respondent unconscious	1	1	1	1
Highly agitated, degree of control not mentioned	5	4	7	4
Highly agitated, uncontrolled	1	—	2	1
Highly agitated, behavior controlled	16	19	11	7
Mildly agitated, degree of control not mentioned	3	2	3	1
Mildly agitated, uncontrolled	1	—	2	1
Mildly agitated, but behavior controlled	7	9	9	5
Shocked, stunned, dazed, due to physical concussion	1	1	1	1
Shocked, stunned, dazed, not due to physical concussion	3	3	1	—
Confused, uncertain, bewildered	4	5	5	3
Calm, unexcited, self-controlled	13	14	6	3
Other affective reactions	1	2	2	1

* Percents based on 242 cases.

TABLE 1-8

DIFFERENCES BETWEEN CODERS, AND DIFFERENCES BETWEEN ORIGINAL AND FINAL CODES, FOR "RESPONDENTS' OBSERVATIONS OF EMOTIONAL REACTIONS OF OTHERS"*

Type of Observations	Percent of Cases Classified in Specified Categories		Percent of Discrepancies	
	In Original Coding	In Final Coding	Between Two Original Codings	Between Original and Final Coding
Observed kin or intimates:				
Highly agitated, uncontrolled	10	10	9	5
Agitated, relatively controlled	33	37	25	14
Shocked, stunned, dazed	6	6	7	4
Calm, unexcited	5	5	7	4
Angry about property or other	--	--	--	--
Other emotional reactions	1	1	1	1
Observed others in general:				
Highly agitated, uncontrolled	19	20	14	8
Agitated, relatively controlled	40	50	33	17
Shocked, stunned, dazed	16	18	10	5
Calm, unexcited	15	17	15	8
Angry about property loss or about other objects	--	--	--	--
Other emotional reactions	1	2	2	1

* Percents based on 242 cases.

TABLE 1-9

DIFFERENCES BETWEEN CODERS, AND BETWEEN ORIGINAL AND FINAL CODES, FOR "LEADERSHIP-FOLLOWERSHIP IN IMPACT PERIOD"*

Type of Role Respondent Played	Percent of Cases Classified in Specified Category		Percent of Discrepancies	
	In Original Coding	In Final Coding	Between Two Original Codings	Between Original and Final Coding
Respondent alone	5	6	2	1
Joint or cooperative action	11	10	9	4
Leader: director: directed others	11	10	7	3
Leader: initiator: led others by example	1	—	1	1
Leader: other:	1	2	1	1
Unsuccessful leader: tries to direct or initiate but others do not follow	2	1	2	1
Follower	6	6	6	3
Non-follower: rejects other's attempted leadership	1	—	2	1
Active, but non-elicitive	2	3	2	1

* Percents based on 242 cases.

TABLE 1-10

DIFFERENCES BETWEEN CODERS, AND DIFFERENCES BETWEEN ORIGINAL AND FINAL CODES, FOR "OVERALL SENSE OF DEPRIVATION"*

Type and Degree of Subjective Deprivation	Percent of Cases Classified in Specified Category		Percent of Discrepancies	
	In Original Coding	In Final Coding	Between Two Original Codings	Between Original and Final Coding
General statement: (no comparisons)				
Feels own deprivations great	5	6	3	1
Feels own deprivations moderate	9	7	12	6
Feels had no deprivations at all	27	29	19	10
Deprivations felt, compared to possibilities:				
Feels own deprivations great as they could have been	3	*	2	2
Feels some deprivation, but not as much as it could have been	28	33	17	9
Feels no deprivations, but some were objectively possible	14	15	17	8
Deprivations compared to others:				
Feels self more deprived than others	--	--	1	--
Feels self equally deprived with others	2	2	2	1
Feels self less deprived than others	32	40	23	12
Identity of others as reference of comparison:				
Household kin, other kin, intimates	1	2	2	1
Particular known others, not kin or intimates	1	2	3	1
Others in general, or people identified only in terms of their experiences	32	38	25	13

* Percents based on 242 cases.

TABLE 1-11

SAMPLING ERRORS OF SELECTED PERCENTS AND DIFFERENCES BETWEEN PERCENTS*

Characteristic	Number of Interviews	Percent of Difference Between Percents	Estimated Sampling Error of Percent or Difference Between Percents**	Estimated Error for Simple Random Sampling
Percent of All Impact Respondents:				
Male	139	52	5	4
Female	139	48	5	4
In agitated state during impact	139	64	4	4
In shocked state during impact	139	6	2	2
Alone during impact	139	13	3	3
With others but no interaction	139	22	5	4
With others and interacting	139	57	5	4
Having no forewarning of impact	139	40	5	4
Respondents in Agitated State:				
As percent of all males	72	53	8	6
As percent of all females	67	76	6	5
Difference	--	23	10	8
As percent of those alone during impact	18	67	11	11
As percent of those not interacting	31	77	9	8
Difference	--	10	13	13
Respondents in Shocked State:				
As percent of all males	72	3	2	2
As percent of all females	67	9	4	3
Difference	--	6	4	4
As percent of those alone	18	6	5	5
As percent of those not interacting	31	6	5	4
Difference	--	--	7	7
Respondents Having No Forewarning:				
As percent of those alone during impact	18	56	11	12
As percent of those not interacting	31	71	7	8
Difference	--	15	12	14
As percent of those not interacting	31	71	7	8
As percent of those interacting	79	20	4	5
Difference	--	51	9	9

* Data for impact cases only. For this group there were 38 sampling units (segments) in three strata.

** Standard deviation of the percent, allowing for clustering but ignoring "finite multipliers."

only a few of the variables. Table 1-11 presents these sampling errors and also (for comparative purposes) the errors that would be obtained in the usual simple random sampling computation. As would be expected, the two values differ somewhat. However, the simpler estimates of error may be useful in providing a rough guide to the reliability of the data presented in the following chapters.

CHAPTER II THE BACKGROUND AND SITUATION PRIOR TO IMPACT

The present chapter will present background data on the population and social characteristics of White County and the particular area sampled for the present disaster study. Later portions of the chapter will deal with the nature of the social situation immediately prior to impact.

POPULATION CHARACTERISTICS OF WHITE COUNTY

As Chart I shows, White County is located in the northeast central section of Arkansas. The town of Searcy, the county seat, is located approximately 50 miles northeast of Little Rock. In 1950, the county had a total population of 38,040. The table on the following page (Table 2-1) presents a number of selected population characteristics for the County and provides comparative data for Arkansas and the United States as a whole.1

These data indicate that the majority of the County's residents live on farms and in small communities of less than 2,500 population. The only community classified as an urban area is Searcy, with a population of 6,024--or 15.8 percent of the total persons in the County.

The population is overwhelmingly native White. There are only 90 foreign born persons in the entire county--less than 0.3 persent of the total. Moreover, the County has an unusually low percent of Negroes for a Southern area. Although the Negro population constitutes over 23 percent of the total population of Arkansas as a whole, Negroes comprise less than four percent of the County's population.

The median educational level of the populace is the same as for the state as a whole--the median of 8.3 years being a year below the educational level for the United States as a whole.

The predominantly agricultural nature of the area is reflected in the relatively low percent of the labor force engaged in manufacturing. A total of only 10.2 percent of the labor force (including both males and females) is employed in manufacturing, the majority in the production of furniture, lumber, and wood products. Of the total of 9,803 employed males in the County, 5,324, or nearly 56 percent are employed in agriculture, 10 percent in manufacturing, six percent in construction, and the remaining 28 percent are engaged in a variety of wholesale and retail trades. The labor force is composed primarily of males--only 16.6 percent of the females over 14 years of age are employed, compared with nearly 29 percent in the United States as a whole.

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1 The data in this section and the following section on housing characteristics are derived from the U.S. Census of Population: 1950 and the U. S. Census of Housing: 1950.

Measured by the standard of annual income, the average family in White County is economically poorer than the average family in the state as a whole. In 1949, the median annual income for all households in the state was $1,570; while in White County the median was only $1,143. Nearly 74 percent of the White County families earned less than $2,000 per year, compared to 60 percent throughout the state. To a large extent, however, these differences in income simply reflect differences in the rural-urban composition of the population. In the only urban community in the County--Searcy--the median annual income in 1949 was $1,725, compared with $1,926 for all Arkansas urban areas. The rural non-farm households in White County (i.e., communities of less than 2,500 population) earned a median income of $1,117 per year compared with $1,287 for their counterparts throughout the state.

Due to the general underreporting of farmers' income in the Census (and in other statistical sources) and to the restriction of Census data to money income, the median income for White County represents an understatement of the real economic level of the area. Allowing for urban-rural differences, it is likely that the economic status of families in White County is, in general, not appreciably lower than that for the state as a whole. There is, of course, an appreciable gap between economic status (and general living standards) for Arkansas and economic status for the United States as a whole.

The median age of the population is about four years below that of the United States and the percent of the population 65 years old or over is slightly below the national percentage, indicating a relatively younger population structure in the County as compared with the country as a whole. The County also has a higher percentage of married persons and a lower percent of the population single and widowed or divorced than the United States.

HOUSING CHARACTERISTICS OF WHITE COUNTY

In order to provide a base for comparing the housing characteristics of White County with other areas, Table 2-2 presents selected housing characteristics of White County, the State of Arkansas, and the continental United States.

The following data show that most of the County's families (nearly 90 percent) live in single family, detached dwelling units, and that a very high proportion own their own homes. The median value of the houses is less than half the median value of those throughout the country but is not markedly below that for the state of Arkansas as a whole.

Compared with housing characteristics for the entire country, White County has an extremely low percentage of houses with hot running water, and indoor private toilets or baths, and central heating. It also has a lower percentage of houses with electric lights, mechanical refrigerators, radio, and television. On most of these measures, however, the housing characteristics do not differ greatly from the statistics for the State of Arkansas as a whole.

Table 2-1

SELECTED POPULATION CHARACTERISTICS OF WHITE COUNTY, THE STATE OF ARKANSAS, AND CONTINENTAL UNITED STATES

Characteristic	White County	Arkansas	United States
Rural-Urban Distribution			
Percent urban (2,500 and over)	15.8	42.8	65.3
Percent rural non-farm	36.6	17.1	20.2
Percent rural farm	47.6	40.1	14.5
Percent increase or decrease in population: 1940-1950	+2.3	-3.2	+14.5
Median age (years)	26.2	26.7	30.2
Percent 65 years old and over	7.8	7.0	8.2
Percent non-White	3.5	23.3	10.5
Number of persons per household	3.59	3.51	3.38
Median school years completed (persons 25 years old and over)	8.3	8.3	9.3
Percent native-born	99.7	99.2	89.7
Median income for families and unrelated individuals	$1,143	$1,570	$2,619
Percent of families and unrelated individuals having income less than $2,000	73.9	60.0	38.6
Percent males 14 years and over in labor force	75.6	80.5	78.7
Percent females 14 years and over in labor force	16.6	20.3	28.9
Percent of labor force employed in manufacturing	10.2	13.4	25.9
Marital Status of the Population			
Males, 14 years old and over:			
Percent single	25.4	24.1	26.2
Percent married	69.2	69.8	67.6
Percent widowed or divorced	5.4	6.2	6.1
Females, 14 years old and over:			
Percent single	17.0	16.8	20.1
Percent married	70.5	68.7	65.7
Percent widowed or divorced	12.5	14.4	14.2

Table 2-2

SELECTED HOUSING CHARACTERISTICS OF WHITE COUNTY, THE STATE OF ARKANSAS, AND CONTINENTAL UNITED STATES

Characteristic	White County	Arkansas	United States
Percent of occupied dwelling units owned by occupant	61.6	54.5	55.0
Percent of dwelling units in one-dwelling unit, detached structures	89.8	86.5	64.0
Median number of rooms per dwelling	4.1	4.0	4.6
Median number of persons per occupied dwelling unit	3.2	3.1	3.1
Median value of one-dwelling unit structures	$3,352	$4,087	$7,354
Median contract monthly rent	$25.82	$27.91	$42.47
Percent in structures built in 1940 or later	24.6	26.9	20.7
Equipment and Utilities			
Percent with hot running water, private toilet or bath and not dilapidated	20.2	28.7	63.1
Percent with no bathtub or shower	69.3	63.0	26.8
Percent with central heating	3.1	10.1	50.4
Percent with mechanical refrigerator	59.7	55.1	80.2
Percent with electric lights	85.7	78.7	94.0
Percent with radio	91.8	89.5	95.7
Percent with television	.6	1.2	12.0

POPULATION CHARACTERISTICS OF THE AREA SAMPLED

The data presented in the preceding sections provide an overall picture of the County as a whole. The general picture for the County is very similar to that for the entire state except for the lower proportions of urban population and Negro population and factors associated with these two characteristics. However, the particular area studied differs from the County as a whole in a number of respects. Briefly stated, the four townships selected as the universe for study contain a higher proportion of persons living in urban areas or small communities, and, correspondingly, a lower percentage of rural-farm families. A number of other differences tend to follow from this difference in rural-urban distribution of the population.

Table 2-3 presents the percentage age-sex distribution of the population for the county as a whole and for the four townships studied.

Table 2-3

AGE AND SEX DISTRIBUTION:--WHITE COUNTY AND THE FOUR TOWNSHIPS SAMPLED

Age Group (Years)	Percent of Population					
	White County			Four Townships*		
	Total	Male	Female	Total	Male	Female
Under 5	11.9	11.7	12.1	11.3	11.1	11.5
5-14	20.1	20.4	19.9	17.8	18.2	17.3
15-20	10.6	10.7	10.4	11.2	11.2	11.0
21-24	5.7	5.6	5.9	6.8	6.7	6.9
25-34	13.2	12.7	13.7	14.4	14.1	14.6
35-44	13.0	13.0	12.9	13.5	13.5	13.5
45-54	10.0	10.0	10.0	9.7	9.6	9.8
55-64	7.8	8.0	7.6	7.6	7.6	7.5
65 and over	7.8	7.9	7.6	7.8	7.8	7.9
Number of Persons	38,040	19,278	18,762	15,442	7,656	7,786

* These townships are Harrison, Bald Knob, Kansett and Gray.

With respect to age, the four townships sampled differ from the County as a whole primarily in having a somewhat higher proportion in the age range 15 to 44 (and slightly lower proportions outside this range). The differences are fairly small and probably reflect the fact that the only urban place in the county (Searcy) is located in the area sampled. The Searcy population makes up 39.0 percent of the sample area population (compared with 15.8 percent of the entire White County population).

There are four places of over 1,000 population in the county, three of which are located in the four townships sampled. Places of over 1,000 population contain 27.2 percent of the County population and 59.4 percent of the population of the sample area.

Table 3-4 presents comparative data for White County and the sample area on a few selected population characteristics. In general, the differences are small and are largely associated with the somewhat greater (relative) urbanization of the four townships sampled. Males slightly outnumber females for the County as a whole while the reverse is true for the sample area. While the proportion of Negro is somewhat higher for the sample area than for the County, Negroes are still only 6.5 percent of the entire population. Average household size in the sample area differs very little from that of the whole county. The only marked differences are with respect to the proportions of the population in the labor force. There is a greater proportion of women in the labor force for the four townships compared with the county as a whole and a smaller

proportion of men. The difference with respect to women probably reflects the greater urbanization and the proportion for males may be due to the same cause.

Table 2-4

COMPARISON OF WHITE COUNTY AND FOUR TOWNSHIPS SAMPLED ON SELECTED CHARACTERISTICS

Characteristic	White County	Four Townships
Percent urban	15.6	39.0
Percent in places of 1,000 population and over	27.2	59.4
Percent male	50.7	49.6
Percent Negro	3.4	6.5
Percent native White	96.2	93.2
Number of persons per household	3.59	3.53
Percent of males 14 years old and over in labor force	75.6	72.3
Percent of females 14 years old and over in labor force	16.6	20.1

CHARACTERISTICS OF THE IMPACT AND NON-IMPACT POPULATIONS

As indicated in Chapter I, two samples were drawn from the areas involved in the tornado. One represents the areas directly in the tornado path (the towns of Judsonia, Doniphan and Boldingville and rural areas adjacent to Judsonia). These areas were all heavily hit by the tornado (almost all structures in them sustaining considerable damage). To study the surrounding area which was peripherally involved in the tornado and, to a considerable extent, involved in the subsequent rescue and relief work, a second sample was selected from the four townships mentioned above. The two samples are referred to throughout this report as those from the "impact" and "non-impact" areas.

In terms of demographic characteristics, the major differences between the impact and non-impact areas are traceable to the fact that Searcy, the largest town (and only urban place) in White County is included in the non-impact area. The non-impact area also included the second largest town in the County--Bald Knob with a (1950 Census) population of 2,022.[1] The impact area includes the town of Judsonia (1950 population of 1,122). As can be seen in Table 2-5,

[1] Some parts of Bald Knob were in the path of the tornado. While a few of the cases interviewed came from these parts of Bald Knob, cases from these areas were excluded from the final tabulations and, consequently, all the Bald Knob sample cases are included in the non-impact group.

the non-impact sample is quite heavily weighted with cases from Searcy and the impact sample, with cases from Judsonia. While the distribution by area shown in Table 2-5 is proper in terms of the actual proportions of the impact and non-impact area populations resident in each place, it should be recognized that the two samples represent different populations. Thus, direct comparisons between the impact and non-impact cases are, in general, meaningless since the non-impact sample is quite heavily urban while the impact sample tends to reflect a more "village" type of economy and culture.

Table 2-5

AREAL DISTRIBUTION OF THE IMPACT AND NON-IMPACT SAMPLES

Area	1950 Census Population	Percent of All Persons In Impact Areas	Percent of All Persons In Non-Impact Areas
Searcy	6,024	--	48
Bald Knob	2,022	--	9
Judsonia	1,122	62	--
Kensett	829	--	7
Doniphan)		12	--
Boldingville)	5,445	6	--
Rural)		20	35
Number of Interviews		139	158

Age-Sex Distribution

Table 2-6 compares the age-sex distribution of the sample for the impact and non-impact areas.[1] This table shows that the impact areas have a relatively smaller proportion of both males and females in the age group 18-34, a higher percentage of males in the age group 35-44, but a lower percentage of females, and approximately the same proportions of both sexes in the 45-54 age group. Impact areas also had a slightly lower percentage of both sexes in the 55-64 age group and a higher percentage of persons 65 years old or over.

[1] In the tabulations, the non-impact cases are weighted in accordance with the sampling probabilities involved (see Chapter I).

Table 2-6

AGE AND SEX DISTRIBUTION OF POPULATION

Age Group (Years)	Percent of All Persons In			
	Impact Areas		Non-Impact Areas	
	Male	Female	Male	Female
18-24	7	8	8	11
25-34	18	16	29	21
35-44	25	14	10	27
45-54	23	17	26	17
55-64	10	10	13	12
65-74	11	18	5	10
75 or over	7	4	9	2
Number of Interviews	72	67	66	92

Race and Nativity

The Negro population comprises less than four percent of the total population of the entire county. In the area studied, the percent of Negroes ranged from four percent in impact areas to eight percent in the non-impact areas. The higher proportion in the latter areas can be accounted for by the relatively heavy concentration of Negroes in the town of Searcy (which, according to the 1950 census, had a non-White population of 8.2 percent).[1]

All of the persons interviewed were native-born and the majority were born in Arkansas or adjoining southern states. Moreover, based upon data on the country of birth of the respondent's father, over 99 percent of the population in the area are offspring of native parents.

Family Characteristics

As the following table shows, the majority of the adults 18 years of age and over are married. In both impact and non-impact areas, there is a

[1] The number of Negro cases in the sample--a total of six in impact and 12 in non-impact--is insufficient to make reliable comparisons between the behavior of Negroes and Whites. Preliminary tabulations on 13 major behavioral and attitudinal columns indicated that there were no outstanding differences in the reactions of Negroes and that the inclusion or exclusion of Negro cases would not materially affect the findings. Throughout this study, therefore, Negro cases have been included in the analysis of all cases.

higher percent of single males and married males than single females and married females. The lower percent of married women and the higher proportion of women who are widowed probably reflects the lower life expectancy of men.

Table 2-7

MARITAL STATUS

Status	Percent of All Persons In			
	Impact Areas		Non-Impact Areas	
	Male	Female	Male	Female
Single	14	6	10	6
Married	81	64	84	77
Widowed	4	30	5	13
Divorced or separated	1	—	1	2
Unspecified	—	—	—	1
Number of Interviews	72	67	66	92

The average household in the area contained between three and four members--the average in impact areas being 3.6 persons and in non-impact 3.3 persons. The following table summarizes the percentage distribution of the population by total number of persons in the household (including children).

Table 2-8

TOTAL NUMBER OF PERSONS IN HOUSEHOLD

Number in Household	Percent of All Households	
	In Impact	Not in Impact
One	14	6
Two	29	24
Three	21	30
Four	14	23
Five or more	22	18
Number of Interviews	139	158

As the following table indicates, the majority of households contained two adults (15 years of age or over). However, over 30 percent of the households in both areas contained three or more adults--mainly adult children, parents, or parents-in-law. In a few households, the additional adults were boarders.

Table 2-9

NUMBER OF ADULTS FIFTEEN YEARS OLD OR OVER IN HOUSEHOLD

Number of Adults	Percent of All Households	
	In Impact	Not in Impact
One	13	8
Two	57	57
Three	19	19
Four	10	13
Five or more	1	4
Number of Interviews	139	158

The following table presents a sex breakdown by number of adults 15 to 69 years of age by households.

Table 2-10

NUMBER OF MALES AND FEMALES 15 TO 69 YEARS OF AGE IN HOUSEHOLD

Number in Household	Percent of All Persons In			
	Impact Areas		Non-Impact Areas	
	Male	Female	Male	Female
None	21	12	16	2
One	66	69	67	74
Two	10	14	12	20
Three or more	2	4	5	3
Number not reported	1	1	--	--
Number of Interviews	139	139	158	158

This table shows that 21 percent of the households in impact and 16 percent of the households in non-impact contained no adult males under 70; whereas only 12 percent of the impact households and two percent of the non-impact households contained no adult females under 70. Generally speaking, the households throughout the area are characterized by an excess of adult females over adult males.

Twenty-eight percent of the households in impact areas and 20 percent of the non-impact households had household members 65 years of age or over. As Table 2-11 shows, the higher percentage of females than males in the area is also reflected in this age category.

Table 2-11

HOUSEHOLDS WITH PERSONS 65 YEARS OF AGE AND OVER

Age and Sex Group	Percent of All Households	
	In Impact	Not in Impact
No household members 65 and over	72	80
Household members 65 and over	28	20
Female 65 and over	13	9
Male 65 and over	5	5
Male and female 65 and over	10	6
Number of Interviews	139	158

Slightly less than half of the households in impact areas contained one or more children, and more than half the households in non-impact areas contained children. Approximately 25 percent of the households in both areas contained two or more children.

In households with children, the average number of children under 15 years of age is 1.5 per household for impact areas and 1.1 for non-impact areas. The lower average in the latter areas reflects the smaller family size in Searcy as compared with the small towns and rural areas in the impact category.

Table 2-12

NUMBER OF CHILDREN UNDER 15 YEARS OF AGE BY HOUSEHOLDS

Number of Children Per Household	Percent of All Households	
	In Impact	Not in Impact
No children	56	48
One child	17	27
Two children	14	17
Three or more children	12	8
Number of Interviews	139	158

Table 2-13

AGE OF HOUSEHOLD CHILDREN

Age Group	Percent of All Households	
	In Impact	Not in Impact
No children	56	48
Children 5-14 years only	24	27
Children under 5 years only	11	11
Children under 5 and 5-14	9	13
Number of Interviews	139	158

Table 2-13 indicates that the largest percentage of the households with children contained children in the age group 5-14 years. However, 11 percent of all households had children under five years of age only and an additional nine percent in impact and 13 percent in non-impact contained both children under 5 and children in the 5-14 year old age group.

SOCIO-ECONOMIC CHARACTERISTICS OF THE AREA SAMPLED

The economic base of the area studied is predominantly agricultural. Cotton and strawberries are the two major cash crops. In 1951, a total of 33,000 acres in the County were devoted to cotton raising; and 16,000 bales of cotton, valued at $3,290,000 were produced. The town of Searcy contains two large cotton gins and a cotton compress and warehouse. The town of Kensett also has a cotton gin for processing raw cotton.

The County is the largest producer of strawberries in the United States. In 1951, it produced 548,000 crates of strawberries, having a total cash value of $3,288,000. The town of Bald Knob has the largest strawberry market in the world. During the peak of the harvest (usually near the end of April), as many as 8,000 persons are employed in picking and processing the strawberries for market. Many of the small-scale industries in the area--e.g., four processing plants in Bald Knob, a frozen food plant in Searcy, a crate and box factory in Judsonia, and a number of trucking companies--are economically dependent upon strawberry production. Other major crops include corn, soy beans, rice, and potatoes.

The County is also a major producer of beef cattle, dairy products, and poultry. In 1951, the County had 100 Grade A dairy barns, 26,519 head of dairy and beef cattle, and produced between two and three million broiler chickens for marketing. Searcy contains two large livestock auctions, a large chicken hatchery, an ice cream plant and numerous service industries and retail establishments centered around the production of cattle, dairy products, and poultry.

Despite the predominantly agricultural nature of the area, the economic base is beginning to shift toward small-scale manufacturing. In the period from 1940 to 1950, Searcy experienced a 65 percent increase in population (from 3,670 in 1940 to 6,024 in 1950) and Bald Knob increased by 40 percent (from 1,445 to 2,022). Most of this increase can be accounted for by the entrance of new industries into these communities. The International Shoe Company has built factories in Searcy and in Bald Knob, the former employing about 400 workers and the latter about 200. The community of Doniphan is devoted entirely to the production of hardwood flooring and employs approximately 115 persons. Three other companies in Searcy--a manufacturer of oak barrels, an oak floor board company, and a company producing railroad ties--are devoted to the manufacture and processing of wood products.

In contrast to Searcy and Bald Knob, the communities of Judsonia and Kensett experienced a considerably smaller increase in population between the 1940 and 1950 census. Judsonia increased from 1,011 persons to 1,222 persons--a rise of 21 percent. The population of Kensett, however, remained almost static: 827 persons in 1940 as compared with 829 persons in 1950--an increase of less than one percent. Many of the employed persons in Judsonia and Kensett, as well as the surrounding rural areas, commute to jobs in Searcy and Bald Knob and carry on small-scale farming in their spare time. This fact is reflected in the following occupational distribution of the main earners in sampled households, which shows that the highest percentage of the labor force

in both impact and non-impact areas is engaged primarily in the crafts and other labor rather than in agriculture. There is, however, a substantial proportion of the non-impact households with the main earner engaged in farming. It should be remembered that, although Searcy cases comprise the largest part of the non-impact sample, the proportion of rural (open-country) cases is higher for the non-impact than for the impact areas.

Table 2-14

OCCUPATIONAL DISTRIBUTION BY MAIN EARNER OF HOUSEHOLD

Occupation	Percent of all Households	
	In Impact	Not in Impact
Craftsman, operative, service worker or laborer	50	38
Farmer or farm laborer	13	21
Manager, official or proprietor	12	11
Clerical or sales worker	3	10
Professional	5	6
Retired or disabled	12	8
Income from source other than job	5	3
All other jobs or occupations	1	2
Number of Interviews	139	158

Family Income

The average income of families and households in the area is relatively low. As the following table shows, 59 percent of the families in impact areas and 56 percent of those in non-impact areas had a total yearly income of less than $2,000. However, this is a lower percentage than for the County as a whole (74 percent having an annual income of less than $2,000) and compares favorably with the percent in the entire state (60 percent).

Table 2-15

FAMILY INCOME PER YEAR

Income	Percent of All Households In Impact	Not in Impact
Under $500	15	11
$500 - $1000	18	23
$1000 - $2000	26	22
$2000 - $3000	21	16
$3000 - $4000	6	9
$4000 - $5000	4	5
$5000 - $10,000	3	5
$10,000 and over	1	4
Income not reported	6	5
Number of Interviews	139	158

Education

The following table summarizes the educational status of the population, based upon the last grade of school completed by the respondents in the sample.

Table 2-16

EDUCATIONAL STATUS OF RESPONDENTS

Education	Percent of all Persons In Impact	Not in Impact
Completed college	4	3
Some college	8	9
Completed high school	12	16
Some high school	23	18
Completed grammar school	24	21
Some grammar school	25	28
No formal education	3	2
Not reported	1	3
Number of Interviews	139	158

This table shows that about one-fourth of the sampled populations had twelve or more years of schooling; slightly less than half had between eight and twelve years of schooling; and about 30 percent had less than eight years of schooling.

There is no evidence of any substantial difference in educational level between the impact and non-impact area cases, although the town of Searcy has an educational level above the national average--approximately 20 percent of the population 25 years of age or over having completed some college training as compared with 13 percent of the total population of the United States. The median school years completed by the Searcy population is 10.8 years, while the United States median is 9.3 years. This is due primarily to the presence in Searcy of Harding College--a denominational school sponsored by the Church of Christ. The college has a student body of about 700 and a faculty numbering about 60 members.

Religion

The population of the area has a strong fundamentalist religious orientation. Over 90 percent of the population are church members and, as the following table shows, virtually all of them are Protestants.

Table 2-17

RELIGIOUS AFFILIATION

Religious Affiliation	Percent of all Persons	
	In Impact	Not in Impact
Protestant	90	90
Catholic	—	1
Jewish	—	—
Other or non-specified	7	5
No religious affiliation	3	4
Number of Interviews	139	158

Denominational affiliation was not asked of the respondents, but the Baptists and Methodists, Christians, Church of Christ and Assembly of God, are known to have a large percentage of the membership. Other denominations represented are the Presbyterian, Protestant Episcopal, Nazarene, Seventh Day Adventists, Church of God, and Jehovah's Witnesses. Catholics have a small church in Searcy and a mission church in Bald Knob.

Attendance at religious services is exceptionally high. Half of the persons interviewed in both impact and non-impact areas attended services once a week or more and about one-fifth attended from one to three times per month. As the following table shows, females generally attended services more frequently than males, but the differences are not great.

Table 2-18

FREQUENCY OF CHURCH ATTENDANCE BY SEX

Frequency of Attendance	Impact Areas		Non-impact Areas	
	Percent of all		Percent of all	
	Males	Females	Males	Females
Once a week or more	43	58	45	53
One-three times per month	26	15	21	20
Less than once a month	19	22	22	20
Never	8	3	8	5
Frequency not reported	3	1	5	2
Number of Interviews	72	67	66	92

Home Ownership

Most of the families in the area—over 65 percent in both impact and non-impact areas—own their own homes. However, there is some variation in the percentage of home ownership by the various communities and rural areas. A comparison of communities shows that Kensett and Judsonia have a considerably higher percentage of home owners than the towns of Bald Knob or Searcy. Moreover, the percentage of home ownership is generally higher in rural areas than in the towns.

Table 2-19

HOME OWNERSHIP BY AREA AND COMMUNITY

Area	Percent of all Homes in Area			Number of Interviews
	Owned	Rented	Not Reported	
Impact areas	68	31	1	139
Judsonia	77	23	—	86
Doniphan	12	88	—	17
Rural areas	75	22	3	36*
Non-impact areas	67	31	2	158
Searcy	62	36	2	78
Bald Knob	55	45	—	20
Kensett	81	13	6	16
Rural areas	71	27	2	44

*Includes eight interviews from Beldingville.

The extremely low home ownership in Doniphan is due to the fact that all except a few of the houses in the community are the property of the owner of the community.

Length of Residence

The following table summarizes the length of residence in the house occupied the day prior to the tornado:

Table 2-20

LENGTH OF RESIDENCE IN HOUSE
OCCUPIED ON DAY PRIOR TO TORNADO

Length of Residence (years)	Percent of all Households	
	In Impact	Not in Impact
Less than 1 year	15	24
1-3 years	20	15
3-5 years	15	18
5-10 years	19	17
10-20 years	14	12
20 years and over	17	12
Not specified	—	1
Number of Interviews	139	158

As this table shows, half of the households in impact areas had lived in the same residence for five or more years, and 41 percent of the households in non-impact areas had lived in the same house for five or more years. The somewhat greater stability of residence in the impact areas probably reflects the lower mobility of population in the small towns and rural areas as compared with the larger towns of Searcy and Bald Knob.

In general, however, as Table 2-21 below shows, the majority of the population in the area are relatively "old settlers"—as measured by length of residence in the same community. About two-thirds of the persons in impact areas and three-fourths of those in non-impact areas had lived in the same community or area for more than five years. In both areas, over half had resided in the same community for more than ten years.

Table 2-21

LENGTH OF RESIDENCE IN TOWN OR RURAL AREA

Length of Residence	Percent of all Households	
	In Impact	Not in Impact
Less than 1 year	7	11
1-3 years	12	12
3-5 years	12	3
5-10 years	5	15
10-20 years	13	13
20 years or over	50	44
Not reported	—	2
Number of Interviews	139	158

Home Utilities and Equipment

Table 2-22 summarizes the extent to which the populace possessed various utilities. As this table shows, virtually all the households had electricity and a radio, and most possessed refrigeration. Over 70 percent possessed gas, and over 50 percent also had running water, and indoor toilets. However, less than half the households in both impact and non-impact areas had a telephone.

Table 2-22

HOUSEHOLD UTILITIES AND EQUIPMENT

Utility	Percent of all Households	
	In Impact	Not in Impact
Electric lights	96	100
Radio	94	96
Refrigerator	80	85
Gas	74	70
Running water	65	69
Indoor toilet	53	67
Telephone	31	43
Number of Interviews	139	158

Car and truck ownership in the area is relatively high. Seventy-one percent of the families in impact areas and 69 percent in non-impact areas owned either an auto or a truck.

Previous Disaster Experience

The general area hit by the tornadoes is frequently referred to as "tornado alley," because of the frequency with which tornadoes strike. Despite this depiction, however, the particular area studied had not had a tornado in recent years, although tornadoes had recently struck a number of nearby communities.

The following table summarizes the extent of direct and indirect experience with previous tornadoes.

Table 2-23

DIRECT AND INDIRECT PREVIOUS TORNADO EXPERIENCE

Type of Experience	Percent of all Persons			
	In Impact		Not in Impact	
Direct	32		22	
Experienced impact once or more before		13		9
Not directly in impact but sufficiently close to be threatened		19		13
Indirect*	25		40	
No previous tornado experience of any type	43		39	
Number of Interviews	139		158	

*Includes seeing destruction wrought by tornado after it had passed, impact experiences told to respondent or heard from others and own experiences as a child which respondent himself does not remember but which family members had related to him.

The above data indicate that the majority of persons in the area had either no previous tornado experience or only indirect experience. Only 13 percent of the impact population and nine percent of the non-impact population had actually experienced a tornado's impact once or more before. An additional 19 percent and 13 percent, respectively, had been sufficiently close to be directly threatened by previous tornadoes.

A considerable number of residents had experience in non-tornado disasters and the extent of this experience is summarized in Table 2-24.

Table 2-24

PREVIOUS NON-TORNADO DISASTER EXPERIENCE

Type of Disaster	Percent of all Persons In Impact	Percent of all Persons Not in Impact
Auto Accident	19	7
Heavy windstorm, hurricane, or typhoon	10	16
Fire	7	11
Flood	7	7
War combat	2	4
War service close to combat lines	2	1
Earthquake	2	—
Other*	2	—
No non-tornado disaster experience	57	62
Number of Interviews	139	158

*"Other includes explosions, train accidents, shipwrecks or severe storms at sea.

By combining the persons having either direct or indirect tornado experience with those having previous non-tornado experience, the following overall picture of previous experience in disasters emerges:

Table 2-25

PREVIOUS DISASTER EXPERIENCE

Type of Experience	Percent of all Persons	
	In Impact	Not in Impact
No previous experience of any type	23	26
Previous experience in tornado only	34	36
Previous experience in both tornado and non-tornado disaster	23	25
Previous experience in non-tornado disaster only	20	13
Number of Interviews	139	158

Approximately three-fourths of the population had some type of previous disaster experience. About one-third of the persons in both areas had some previous experience in tornadoes only, and approximately one-fourth had both tornado and non-tornado experience.

The percent of males who had previous disaster experience was higher than the percent of females with previous experience in impact areas, while equal proportions of males and females from the non-impact areas had had such experience. The picture on tornado experience is similar.

Table 2-26

PREVIOUS DISASTER EXPERIENCE BY SEX

Type of Experience	In Impact		Not in Impact	
	Percent of all		Percent of all	
	Males	Females	Males	Females
No previous experience of any type	14	33	26	26
Previous experience in tornado only	40	27	25	44
Previous experience in both tornado and non-tornado disaster	26	19	34	19
Previous experience in non-tornado disaster only	19	21	14	12
Estimated Number of Interviews	72	67	64	94

More males than females reported non-tornado experiences both in the impact and non-impact areas. This finding is probably dependent on the number of men who were in or near wartime combat.

There was also some variation by communities in the percent of persons having various types of disaster experience, although the differences are not great. The following table summarizes the percentage of persons in Judsonia, Bald Knob, and Searcy having various types of disaster experience.

Table 2-27

PREVIOUS DISASTER EXPERIENCE BY AREA

Type of Experience	Percent of all Persons In		
	Judsonia	Bald Knob	Searcy
No previous experience of any type	24	20	30
Previous experience in tornado only	23	25	21
Previous experience in both tornado and non-tornado disaster	35	40	38
Previous experience in non-tornado disaster only	17	15	11
Number of Interviews	86	20	78

Storm Cellars and Tornado Protection

Despite the previous history of tornadoes in the area, most persons did not have a storm cellar for protection. A total of about 16 percent of the families in impact and eight percent of the non-impact families reported they either possessed a storm cellar of their own or had access to a neighbor's cellar. Since some of the non-impact cases (and, possibly, a few of the impact cases) who did not mention availability of a storm cellar may actually have one, there may be little difference between the two areas in this respect. In any event, it is likely that the number of cases possessing or having access to a storm cellar is small.

The evidence indicates that storm cellars were possessed somewhat more frequently by persons in rural areas than by persons who lived in the towns—probably because the cellars served the dual function of potential protection and a place to store canned goods, fruits, and other perishables.

Table 2-28

AVAILABILITY OF STORM CELLAR

Availability of Storm Cellar	Percent of all Persons In Impact	Not in Impact
Possessed own storm cellar	7	6
Had use of neighboring cellar	9	2
Definitely had no cellar available	43	28
Not reported	41	64
Number of Interviews	139	158

Previous Tornado Knowledge

Most persons in the area had been sufficiently exposed to tornado lore or experience to have some prior knowledge of the cues identifying tornadoes, the destructive potentialities of tornadoes, and the appropriate kinds of protective action to be taken in the event of a tornado. The following table summarizes the content of prior tornado knowledge as reported by the respondents in the sample.

Table 2-29

CONTENT OF PRIOR TORNADO KNOWLEDGE

Type of Knowledge	Percent of all Persons In Impact	Not in Impact
Had no knowledge at all	13	9
Had specific knowledge and ideas about:		
Cues by which to identify a coming tornado	21	19
Kind of damage that could be done	31	31
Appropriate precautionary or protective action	38	28
Vague or general knowledge about:		
Cues by which to identify a coming tornado	11	14
Kind of damage that could be done	30	33
Appropriate precautionary or protective actions	1	5
Not reported	11	17
Number of Interviews	139	158

It will be noted that 13 percent of the impact cases and nine percent of the non-impact cases explicitly stated that they had no prior tornado knowledge at all. While about 60 percent of all persons interviewed had some knowledge of the kind of damage a tornado can do, less than 40 percent knew anything about appropriate precautionary and protective actions to take. Measured against a standard of the best available knowledge concerning appropriate action to take in tornadoes, it would probably be accurate to say that the overwhelming majority of residents in the area had only a rather vague or inadequate knowledge concerning appropriate precautionary and protective measures.[1]

Only about one-third of the cases knew anything regarding cues which might warn of an approaching tornado and still fewer cases had specific knowledge of such cues — even though tornadoes are a real possibility in the area and over half of the population had had some previous experience with tornadoes.

Disaster-Related Skills

Only a small percent of the total population in the area had specific prior training or skills in handling the various problems which arise in disasters. Following is a summary of the percent of the population having various types of disaster-related training or skills.

Table 2-30

DISASTER-RELATED SKILLS

Skill	Percent of all Persons	
	In Impact	Not in Impact
Military service but not in combat	13	11
Military combat experience	6	6
Construction work background	7	5
Utilities, communication or transportation background	7	8
Membership in relief organization, government, church official, or teacher	3	4
Medical training	2	3
No skills or unspecified	68	70
Number of Interviews	139	158

As the above table shows those with previous military experience constitute the largest percentage of persons with any prior disaster skill and training.

[1] For the recommended safety measures in tornadoes, see Appendix A-11.

THE SITUATION PRIOR TO IMPACT

In Chapters III and IV the descriptive sequence of behavior from the pre-impact through the post-impact period will be presented. In the remaining portion of this chapter, however, the pre-impact sequence of events and the geographic, spatial, and social situation of the population immediately prior to impact will be considered. The present material, then, provides the situational context and social matrix within which the data of the following chapter should be interpreted.

Pre-Impact Weather Indicators and Forecast

During the two days preceding the tornado, the temperature in the area was unseasonably high—hovering in the low eighties during the day and dropping to the low fifties in the evening. The average maximum and minimum temperatures for March are usually about twenty degrees lower.[1]

Similarly, although the temperature dropped to freezing and below during the three days following the tornado, the day of the tornado itself—March 21—was unseasonably warm and humid. Persons interviewed complained of the excessive heat and humid, "sticky" atmosphere during the day.

Shortly after noon on March 21, the Weather Bureau forecast center at Kansas City, Missouri, called the Little Rock Weather Bureau office by long distance telephone and relayed the following warning from Washington, D. C.: "Severe thunderstorms and possible tornadoes are expected to occur in the southern part of Arkansas this afternoon and tonight." This warning was released, without modification, to the press and radio stations immediately following its receipt. No other warnings were issued.[2]

It should be noted that the forecast did not specify tornadoes in central Arkansas, the area under study, and at least one Little Rock newspaper stated in its weather report that "the Little Rock bureau emphasized that this activity was not expected to reach as far north as Central Arkansas."[3]

The Course of the Tornadoes

At approximately 3:00 P.M., the first tornado struck the town of Dierks, in the southwestern part of the state (see Chart 1) and continued in a northeasterly direction, going aloft for some distance and then successively striking the ground at various points along its path. The community of Paron

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[1] Source: "Climatological Data: Arkansas," Volume LVII (No. 3), March, 1952, U. S. Department of Commerce, pp. 31-32.

[2] Information supplied by James F. Rink, meteorologist at the Weather Bureau, Little Rock, Arkansas, in a letter dated April 7, 1954.

[3] "Arkansas Democrat," March 21, 1952.

in Saline County was struck about 4:00 P.M.; the town of Mayflower, in Faulkner County a few minutes later and it then continued toward the Judsonia-Bald Knob area, striking there about 5:30 P.M. Meanwhile, at least two other tornadoes started in the south central portions of the state and moved in the same northeasterly direction. One started near England in Lonoke County, striking that community at about 5:00 P.M. A third was first sighted aloft to the north of the city of North Little Rock at 5:00 P.M. and it first touched ground near Wattinsaw in Lonoke County about 5:17 P.M.

In the Judsonia-Bald Knob area there may have been two or more separate tornadoes with overlapping tracks--since the path of destruction in this area was a mile and one-half wide as compared with a range of 100-900 yards in most other areas. However, the Weather Bureau stated that there was not sufficient evidence to conclude that more than one storm went through the area.

Pre-Impact Cues and Forewarning

Despite the weather forecasts disseminated by the Little Rock Weather Bureau and the radio announcements concerning the tornado striking Dierks, Arkansas in mid-afternoon, most persons in the area had little or no forewarning that a tornado was approaching. Only one percent of the persons in impact areas and four percent in non-impact areas had heard or read of storm warnings or heard reports that tornadoes had struck other communities in Arkansas.

By late afternoon, most persons had noted the dark clouds, thunder, and high winds of an approaching storm. In most cases, however, these cues were not sufficient to lead the person to a definition of a tornado. In some cases, they provoked a feeling of vague uneasiness but, even in these cases, the definitions were mainly of the "just a bad storm" type. High winds and heavy thunderstorms are a common occurrence in this area, and the evidence indicates that the vast majority of the population assimilated the early pre-impact cues to a "normal bad storm" definition--not a storm of tornado or disastrous proportions.

The sign or cue most frequently associated with a tornado is the so-called "funnel," a cone-shaped or vortex cloud formed by the meeting of large bodies of cool dry air and warm moist air. In some tornado disasters, this funnel can be seen clearly before it actually strikes. In the present case, however, the actual impact of the tornado was preceded by a period of extreme darkness. Following are some typical comments describing this period immediately preceding impact:

> ...the first thing I knew it was almost totally dark. (Case R-226, p. 1)[1]

> It just turned dark. I went to the door and I looked out to see what it was. I couldn't see anything, it was so dark. (Case R-230, p. 1)

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[1]Numbers following [illegible] refer to the original case numbers of the interviews. An "R" case number refers to a "regular" sample case; an "S" [illegible] respondent interview.

That wind was hard and it looked so dark and everything... (Case R-118, p. 39)

It was so dark and the clouds were so black...we couldn't see nothing out of the window. (Case R-302, p. 65)

By that time it had already turned dark; you know, it was very dark. (Case R-346, p. 5)

As the above quotes indicate, the darkness tended to obscure vision and virtually none of the persons interviewed indicated that they saw the funnel or vortex cloud. Only one percent of the cases in impact and one percent in non-impact mentioned seeing the funnel.

Geographic Location of the Population at Impact

Table 2-31 presents the geographic location of the sampled population at the time of the tornado's impact, by communities and rural areas.

Table 2-31

GEOGRAPHIC LOCATION AT TIME OF IMPACT

Area	Percent of all Persons	
	In Impact	Not in Impact
Judsonia	62	—
Judsonia rural	12	13
Beldingville	12	—
Doniphan	12	—
Searcy	—	44
Searcy rural	—*	12
Bald Knob	1*	7
Bald Knob rural	1*	7
Kensett	—	7
Kensett rural	—	2
Elsewhere in White County	—	2
Outside White County	—	6
Number of Interviews	139	158

*For Bald Knob and the rural areas surrounding Bald Knob and Searcy, persons resident in neighborhoods hit by the tornado were excluded from the sample. The two cases shown are persons from other impact areas who happened to be in the Bald Knob or Bald Knob rural impact areas. Aside from these two cases, the Bald Knob, Bald Knob rural and Searcy rural areas struck by the tornado were not included in the sampling.

As this table shows, 62 percent of the impact population was in Judsonia and 12 percent each were in Domiphan, Boldingville, and Judsonia rural areas. The non-impact population was widely distributed throughout the several communities and rural areas, although over half of them were in Searcy or rural areas near Searcy.

Spatial Location of the Impact Population

Most persons in the impact areas were in their own homes at the time of impact or at the time that they defined the situation as threatening. As the following data show, 80 percent were in their own homes and two percent were outside, near their homes. Including the 80 percent who were in their own homes, over 90 percent of the impact respondents were inside some structure.

Table 2-32

SPATIAL LOCATION OF IMPACT POPULATION AT IMPACT OR AT TIME OF THREAT DEFINITION

Location	Percent of all Persons in Impact Areas
In own home	80
Inside other residential structure (not own)	5
Inside business structure	7
Inside other structure (barn, shed, etc.)	1
Outside, in open, near home	2
In stationary vehicle	4
In moving vehicle	1
Location not reported	1
Number of Interviews	139

Nature of Routine Activity at Time of Impact

The tornado struck the area between 5:30 and 5:45 P.M. At this time most persons were at home with their families preparing for or eating dinner, relaxing from their day's work, or performing household or farm chores. The following table summarizes the routine activities that were interrupted by the tornado's impact or by the realization of severe threat.

Table 2-33

NATURE OF ROUTINE ACTIVITY AT IMPACT OR TIME OF THREAT DEFINITION

Nature of Activity	Percent of all Persons in Impact Areas
Recreational activities (reading newspaper, relaxing, chatting with household members, listening to radio, visiting, etc.)	31
Eating dinner	22
Household chores (preparing food, washing dishes, etc.)	15
Working at business or shop	7
Farm or yard chores (feeding livestock, etc.)	4
Shopping	2
Other (personal routine, shaving, getting dressed, driving home, etc.)	4
Nature of activity not reported	15
Number of Interviews	139

Social Composition of Impact Groups

Size of Groups

Table 2-34-a shows the size of the household or other social groups in impact areas at the time of impact.

Table 2-3~~4~~-a

SIZE OF GROUP AT TIME TORNADO STRUCK

Size of Group*	Percent of all Groups in Impact Areas
One person alone	13
Two persons	20
Three persons	17
Four persons	16
Five persons	9
Six persons	8
Seven persons	1
Eight persons	3
Nine persons	1
Ten or more	4
Size not reported	6
Number of Interviews	139

*"Group" is defined as the respondent and all persons present with the respondent at time of impact, excluding children under the age of five years.

It will be noted that 13 percent of the respondents were alone during impact and that about 80 percent of the residents were members of groups ranging in size from two through 10 or more persons. The groups composed of eight or more persons were mainly those who were in business establishments at the time of impact, although, in a few cases, they were composed of party groups or a large gathering of relatives.

Sex-Age Composition of Groups at Impact

Table 2-3~~4~~-b presents data on the sex and age composition of the various households and other groups exposed to impact. It shows that at the time of impact, 40 percent of the respondents were in mixed adult-child groups— composed of adult males, females, and children (under 15 years). The next largest percent of the population were members of mixed adult groups—composed of adult males and females. Only a small percentage of the residents were in groups composed of adult female and children, or adult males or females only. Stated somewhat differently, over 70 percent of the population were in groups where both an adult male and an adult female were present and 45 percent of the population were in groups containing children.

Table 2-34

SEX-AGE COMPOSITION OF GROUPS TOGETHER AT TIME TORNADO STRUCK

Sex-Age Composition	Percent of all Groups in Impact Areas
Mixed adult-child (adult males, females and children)	40
Mixed adult (adult males and females, no children)	33
Adult females and children only	5
Adult females only	4
Adult males only	4
Person alone or group composition not reported	14
Number of Interviews	139

Relationship of Persons who were with Sampled Respondents at Impact

Most of the groups exposed to impact were composed of immediate family members, other kin, or intimates. This is shown in the following table which gives the relationship of the persons who were with the sampled respondents at impact.

Table 2-35

RELATIONSHIP OF PERSONS WHO WERE WITH RESPONDENT AT IMPACT

Relationship	Percent of all Groups in Impact Areas
Spouse	58
Offspring (any age)	46
Parents	13
Siblings	9
Other blood relatives	10
In-laws	15
Intimates and particular known others (non-kin)	19
Strangers	1
Person alone or relationship not reported	14
Number of Interviews	139

Table 2-35 indicates that only one percent of the total groups contained strangers although 19 percent were groups that contained non-kin members.[1] About two-thirds of all the groups were composed entirely of related individuals.

Household Members Separated at Time of Impact

Seventy-five percent of the impact area households were complete and intact at the time of impact. In 22 percent of the cases, one or more member was separated from the other members of the household at the time of impact.[2] The following table presents data on the relationship of absent household members to the respondents.

Table 2-36

RELATIONSHIP OF ABSENT HOUSEHOLD MEMBERS TO RESPONDENT

Relationship	Percent of all Households in Impact Areas
Husband absent	7
Wife absent	2
Offspring absent	5
Husband and offspring absent	1
Wife and offspring absent	4
Parent absent	1
Parent and sibling absent	1
Other household kin absent	1
Relationship not reported	1
No member of household absent (household complete)	75
Number of Interviews	139

[1]It would be desirable to compare groups composed entirely of strangers with those composed entirely of closely-related persons, in order to determine the effect of intimacy of relationship on the behavior of persons subjected to disasters. However, our data provide too few cases of persons who were with strangers to make reliable comparisons of this type.

[2]The base of reference in this tabulation is the pre-impact household. If one or more members of the pre-impact household were absent from the respondent at the time of impact, the case is classified as an incomplete or separated household. It should also be noted that the location of the respondent interviewed provides the particular point of reference for determining absence of household members. For example, if a male respondent was working in a store at the time of impact and his wife and two children were at home, the case is classified as "wife and offspring absent." Similarly, if, in this case, the wife were the respondent, the case would be classified as "husband absent." The crucial matter, of course, is the fact of separation itself—not the geographic location of the households.

The above table indicates that husbands and offspring were most frequently the absent members (eight to nine percent). In six percent of the households the wife was absent.

Virtually all the missing or absent household members were in or near their home communities at the time of impact. Some were working in shops, some were shopping in the business districts, others were in autos on their way home from work. Only three percent of the total cases were outside White County at the moment of impact. Thus, the members of the incomplete households were relatively close spatially. In most cases, a radius of only a few blocks or a few miles separated the missing members.

Extent of Physical Incapacitation

One final situational aspect should be indicated before proceeding to the description of the behavioral sequence—namely, the extent of incapacitation of the population prior to the tornado. Presumably, if persons are physically or emotionally incapacitated, they are likely to be limited in the type and scope of their action during a disaster.

Although our data on incapacitation are incomplete, the following table indicates that about 20 percent of the population in both impact and non-impact areas suffered some form of pre-tornado physical or emotional incapacity. The available data suggest, however, that only a small proportion of the population had serious types of incapacitation.

Table 2-37

PRE-TORNADO PHYSICAL AND EMOTIONAL INCAPACITATION OF POPULATION

Type of Incapacitation	Percent of all Persons In Impact	Percent of all Persons Not in Impact
Slightly incapacitated by chronic ailment, temporary illness or slight injury	20	14
Seriously incapacitated by chronic ailment	1	3
Seriously incapacitated by temporary illness or injury (including hospitalized)	—	1
Chronic heart condition	2	3
Emotional disturbance (bereavement, extreme "nervousness," etc.)	—	1
No indication of illness, physical disability or other incapacity	78	81
Number of Interviews	139	158

CHAPTER III THE DISASTER SEQUENCE: IMMEDIATE PRE-IMPACT AND IMPACT

The first part of this chapter gives a description of the reactions of individuals in the immediate pre-impact period. The second part details the responses of persons during the impact period. The chapter is essentially descriptive in nature. More detailed analysis of the factors related to the types of behavior presented here is deferred to later sections of the report.

IMMEDIATE PRE-IMPACT

By immediate pre-impact we have reference to the time period just prior to impact, i.e., from about 5:15 P.M. to a little after 5:30 P.M. on Friday, March 21, 1952. The tornado struck Judsonia at approximately 5:34 P.M. It hit all the other localities in the immediate area within about five minutes of the time it hit Judsonia. Actually, the immediate pre-impact period is defined in terms of how the respondent interpreted the question, "Tell me what you were doing just before the tornado hit?" Because of this subjective definition and the slight areal differences in times of impact, our referent for the beginning of the immediate pre-impact period probably varies from about 5 P.M. to about 5:30 P.M. Generally speaking, however, this period can be thought of as approximately the quarter-hour before the tornado hit a particular locale.

Forewarning

Most people in the impact areas had little forewarning[1] of the tornado. How very little warning many individuals had is illustrated in the following remark of someone who was alerted to danger by the roaring sound. He stated:

> ...and there was no whistle, just an enormous roar. That's when we knew we was going to get in a real bad storm ...just about that time it hit the front of the house. (Case R-138, p.7)

The interviews indicate that nearly two-thirds of all impact respondents had a forewarning of less than a minute. This includes those who had no forewarning at all. The persons without any forewarning comprised over a third of all the respondents in the impact areas. One individual who had no forewarning expressed it as follows:

> ...not expecting any cyclone or any storm of any kind why I lit the oil lamp--'cause the electric lights were out, went

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[1] Individuals who had some time, even seconds, between the definition of a threat and impact itself are considered to have had forewarning.

> off at five-thirty-two. Well, I hadn't the oil lights lit very long...about that time the storm hit the house and things began to happen in general. First thing I knew anything about it was a storm was an awful wind that shook the house considerably and then we had the house bumped up behind, and then front and then sideways, and then went off the foundation. (Case E-130, p. 1)

Among those who had more than a minute's forewarning, and they comprised a third of all respondents, only a very few (about 3%) had a warning of more than five minutes.

It should be noted that the classification of respondents by amount of forewarning is necessarily subject to some inaccuracy. Individuals' estimates of elapsed time are inexact even under normal conditions and, in this case, the respondents had passed through an extremely vivid and disturbing experience between the period recalled and the time of interview. In addition, the "end-point" of the time interval is a "variable" since there is a slight (although short) interval between the first severe wind effects of a tornado and arrival of its epicenter. "Less than a minute" consequently means that the analysts interpreted the respondent's statements as indicating that there was practically no elapsed time between their realization that a serious danger threatened and impact of the full fury of the storm. These judgments (and the respondents' estimates on which they are based) are quite subjective and there is, undoubtedly, some overlap between the "no forewarning," the "less than one minute," and the "more than one minute" categories. Although the above should be kept in mind, it is clear, nevertheless, that most individuals in the impact areas had very little advance notice that a tornado was going to hit them.

Table 3-1

AMOUNT OF FOREWARNING THAT IMPACT RESPONDENTS HAD

Amount of Forewarning	Percent of All Persons in Impact
No forewarning before impact	36
Forewarning of less than a minute	27
Forewarning of more than a minute	33
Amount of forewarning unreported	4
Number of Interviews	139

As shown in Table 3-2, the communities varied somewhat in the amount of forewarning they had. Individuals in Boldingville appear to have had more

warning than persons in other localities. More than half of the people in Boldingville, compared with less than a third of the people elsewhere, had a forewarning of over a minute. Furthermore, less than a fifth of the respondents in Boldingville had no forewarning, where a third or more of all respondents in other impact areas had no warning.

These areal differences are mainly due to several chance factors. One was the presence in Boldingville of several individuals who were highly sensitized to storm cues. They tended to interpret correctly such cues as they perceived. Furthermore, they tended to alert others to the danger. This can be seen in the following excerpt from an interview with a woman at Boldingville.

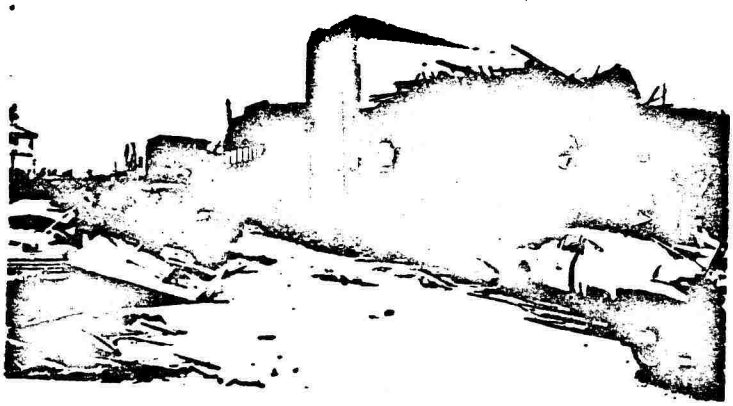
> ...I've always heard people say if you turn your radio on and there's a lot of static you can look out for some bad thunder and lightning. So I turned the radio on--couldn't hear a thing--so much static I couldn't hear anything. So I--my husband he was on the porch, so I walked out on the porch and I asked him to let's go to the cellar. It was thundarin' and lightnin'--he said, he didn't think it was gonna be anything. Still and all it rained. So I walked back in the living room and got my flashlight--went to bedroom and got a coat. One of the neighbors down here come in so I walked on out and called him to come down cellar. And after I went in the cellar, well, by that time the other neighbors was coming in...and I kept a hollering for him to come to the cellar. (Case R-206, p. 1)

Table 3-2

AMOUNT OF FOREWARNING BY IMPACT AREAS

Amount of Forewarning	Percent of All Persons in Each Impact Area			
	Judsonia	Judsonia Rural	Doniphan	Boldingville
No forewarning	33	47	59	18
Forewarning of less than a minute	30	24	18	29
Forewarning of more than a minute	31	29	24	53
Amount of forewarning unreported	6	--	--	--
Number of Interviews	86	17	17	17

JUDSONIA







Cues

Since the tornado was preceded from the early afternoon on by dark clouds, thunder and lightning, high winds, rain, and other weather disturbances, most persons naturally noted a large number of storm cues in the pre-impact period. The nature of the cues observed and the proportion of individuals that perceived each cue are given in Table 3-3. One consequence of the perception of these various weather signs is that, by five o'clock, most people expected (or at least thought it very likely) that they were going to undergo a storm of heavy although not disastrous proportions. The possibility of a tornado occurred to only a very few people.

Consequently, both in the impact and non-impact areas, almost all of the initial pre-impact cues were assimilated into a "normal bad storm" definition. Respondent after respondent reported this. The following are typical remarks:

> It was extra hot that day and seemed kind of all sticky you know, just a little different than usual, but that seemed to me like it's common when it is going to rain or electrical storm. (Case R-118, p. 2)

> (Did the darkness make you think anything was going to happen?) Not anymore than it does whenever it's cloudy. Whenever it's real cloudy, it's always dark in the house. (Case R-298, p. 7)

> When I saw them [i.e., clouds], they looked kind of a greenish color, and, of course, that usually--usually denotes some hail, you know. (Case R-138, p. 3)

> I had noticed, of course, the heavy wind and rain and thought it was unusually heavy but...I just thought it was a rain storm. It had been rather peculiar looking throughout the afternoon--the weather was changeable, the sun would try to shine awhile and then it would be a grayish, dark looking cloudy appearance but I just...thought we were going to have a rain storm. (Case R-342, pp. 1, 3)

> It looked like a big cloud coming up from the west, southwest, and it looked like it was going to rain, perhaps hail... I didn't pay any attention to the clouds. (Case R-250, p. 1)

Even the roaring, the only cue of all those noticed in the immediate pre-impact period that respondents in impact areas reported they perceived more often than persons in non-impact areas, sometimes got assimilated to a normal definition. This was particularly true of those people who lived near the railroad tracks. They mistook the roaring for a train. One respondent reported her experience in this connection as follows:

> I heard an awful roaring. Sounded like a train and I kept listening for a train to whistle and finally I heard a whistle and I was relieved you know. I thought it was just gonna be a train instead of a storm. So then the wind started blowing but I still wasn't scared because I thought it was a train. (Case R-92, p. 1)

Other respondents reported:

> I heard it roaring...I thought it might be a train. (Case R-346, p. 1)

> I noticed an extremely loud noise. It sounded similar to a heavy freight coming through town. (Case R-150, p. 1)

> My wife asked me what that roaring was and I went to the door and it sounded a little bit like a train in the distance. (Case R-250, p. 1)

> I didn't hear anything but the roaring...sounded like a train awful close. (Case R-230, p. 4)

Similarly, the electric power failure, which was noted by a majority of individuals in both impact and non-impact areas, was assimilated to normal expectations. The people of this area are accustomed to frequent power failures. Consequently, when the power failed this time, it occasioned neither uneasiness nor even surprise. People simply went about their business, getting out candles, lamps or flashlights which they always kept handy for an eventuality like this. They assimilated the power failure to their expectations, just as they assimilated most of the direct weather cues to a "bad storm" definition.

A comparison of impact and non-impact areas (Table 3-3) shows that three kinds of cues were reported more often by respondents in non-impact areas. These were (1) rain, (2) wind, wind sounds, and effects, and (3) electric power failure. However, it is quite probable that these are more a function of differential reporting by impact versus non-impact respondents, rather than differences in exposure to such events--individuals who had perceived parts of their homes being blown away or had their homes destroyed would be less prone to report the very obvious fact that it was windy or that there had been an electric power failure prior to impact.

That a substantial proportion of people in the non-impact areas reported hearing the roaring is somewhat surprising. It is probable that a number of them used the term, which had obtained widespread currency and usage after the tornado (and while the interviewing was going on) to designate the usual storm noises which they had perceived that late afternoon. The term "roaring" for non-impact respondents, therefore, probably has a different meaning than the "roaring" reported by impact respondents. Except for non-impact respondents who lived near the impact areas (and therefore may have heard the

roaring sound of the tornado itself), the roaring sound reported refers in most cases to the usual sound of high winds rather than the tornado itself.

Table 3-3

PRE-IMPACT STORM CUES PERCEIVED IN IMPACT AND NON-IMPACT AREAS

Storm Cues Perceived in Pre-Impact	Percent of All Persons	
	In Impact	Not in Impact
Wind, wind sound, and wind effects	60	78
Clouds, thunder, lightning	59	60
Lights going out	50	57
Rain	45	63
Roaring	40	22
Darkness	33	30
Color and texture of atmosphere	27	29
Physiological (self) reactions to temperature, pressure	14	13
Non-communicative actions and behavior of others	3	1
Mass media storm warnings or reports of tornadoes in other area	1	4
Funnel	1	1
Other storm cues not elsewhere classified	4	5
No pre-impact storm cues reported	6	6
Number of Interviews	139	158

The fact that virtually all of the pre-impact cues could be assimilated to a bad storm definition or to normal expectations meant that most persons were not likely to define the situation as threatening until very shortly prior to impact. This is substantiated by the figures reported in Table 3-1. However, this should not obscure the fact that most individuals in the impact areas (60%) were at least alerted to danger by some cue or cues which they perceived prior to the full impact of the tornado. It is to these threat-defining cues that we now turn.

As shown in Table 3-4, a wide variety of cues were used in formulating a definition of threat or danger. Generally speaking, the physical effects of the tornado rather than weather conditions as such were interpreted as the definitive cues[1] of actual danger. Such storm effects as windows breaking,

[1] Some respondents reported more than one definitive cue, although the majority of them mentioned only one.

windows and doors flying open, minor structural destruction, house vibrations, and objects flying about and hitting the residence were reported as the definitive cues by about a third or more of the respondents. Typical remarks of individuals regarding such cues were as follows:

> I didn't know there would be a storm until I got in the house when the transom blew over the door and I looked up and saw rain blowing thru the transom. I knew it took a terrible wind to cause rain to go over the door and thru a transom that way. Something I'd never seen before. (Case R-358, p. 4)

> We didn't know it was a storm until it blew the windows out. (Case R-245, p. 1)

> This east wall--the pictures that were on it went off... my first warning of a bad storm. (Case R-368, pp. 2, 4)

> Well, I knew that it was a tornado right there you know when...the house started to cracking. (Case R-128, p. 6)

> (When did you first realize that something was wrong?) When the wind started blowing so hard...then of course you could see things in the air...I was looking out that window, you could see tin and things like that blowing.... (Case R-118, pp. 1, 2)

The only other definitive cue reported by any substantial proportion of respondents was the unusual roaring sound. Sometimes this cue was detected somewhat in advance of impact. This occurred in the following case of a woman who reported:

> This roar kept building up in my ears and in my head until it just seemed like it was going to explode. By that time the wind had built up until it was really getting quite fierce and I said, 'Jack we must be going to have a bad storm.' (Case R-126, p. 1)

At other times the perception of roaring occurred almost simultaneously with impact. As one respondent put it:

> And there was no whistle, just an enormous roar. That's when we knew we was going to get in a real bad storm...Just about that time it hit the front of the house. (Case R-138, p. 7)

The funnel shaped cloud, typical of tornadoes, was cited as a certain indicator of danger by less than one percent of the respondents.[1] The fact

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[1] It was perceived in the pre-impact period only by about one percent of all respondents. See Table 3-3.

that most people (92% of the impact respondents) were inside a structure and that the actual impact of the tornado was preceded for the most part by a period of extreme darkness and driving rains, would seem to account for the failure of more people to see this cue. That there was such a funnel shaped cloud is verified in accounts of individuals who lived in the rural areas outside the periphery of the tornado struck area. A farmer reported his perception and reaction to it as follows:

> I was checking that cloud. I watched it, it was in a funnel shape, you know, bigger at the bottom than it was at the top, blacked up down there and when them two met right over there in the west, it done come right back. I was out in that window there, checking it. We took off for the cellar. (Case R-270, p. 2)

Table 3-4

DEFINITIVE CUE OR EVENT USED BY IMPACT RESPONDENTS

Definitive Cue or Event	Percent of All Persons in Impact
Windows breaking, doors flying open, etc.	42
Objects flying about outside, seen and/or heard striking house	34
House moving off foundations, vibrating, parts blowing away	32
Roaring and other equivalent wind sounds	29
Clouds, thunder, lightning, rain darkness	9
Color and/or texture of the atmosphere (e.g., sky hues, cloud colors, hazy atmosphere, etc.)	6
Water coming into the house (flooding)	4
Physiological (self) reactions to temperature, pressure	3
Funnel	1
Non-communicative actions or behavior of persons	1
Other storm cues not classified elsewhere	4
No definitive cue or event reported	7
Number of Interviews	139

Physical effects of the tornado, although used as the definitive cue or cues by the greatest proportion of individuals, were not those which gave the greatest warning. Individuals who defined the roaring, objects flying about or other atmospheric conditions as the definitive cue arrived at a definition of threat before those who used minor structural destruction or house vibrations as the definitive cue. This is shown in Table 3-5. In other words, the

persons who had the most forewarning were those who arrived at a definitive cue before the structure they were in actually began to sustain obvious physical destruction.

Table 3-5

AMOUNT OF FOREWARNING AND DEFINITIVE CUE OR EVENT USED

Definitive Cue or Event	Amount of Forewarning		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Windows breaking, doors flying open, etc.	45	50	31
Objects flying about outside seen and/or heard striking house	29	32	44
House moving off foundations, vibrating, parts blowing away	41	29	29
Roaring and other equivalent wind sounds	14	37	44
Clouds, thunder, lightning, rain, darkness	2	11	16
Color and/or texture of the atmosphere (e.g., sky hues, cloud colors, hazy atmosphere)	—	3	18
Water coming into house (flooding)	8	3	—
Physiological (self) reactions to temperature, pressure	2	3	4
Funnel	—	—	2
Non-communicative actions or behavior of persons	2	—	—
Other storm cues not elsewhere classified	4	3	4
No definitive cue or event reported	14	—	2
Number of Interviews	45	38	51

Social Interaction

Social interaction is used here primarily in the sense of verbal communication. Both from an analytical and descriptive point of view this is not altogether satisfactory. It leaves out of consideration all non-verbal communication which oftentimes is as important as spoken words. Actions, gestures,

looks, etc., are communicative. And certainly it is quite clear in some interviews that much more was communicated than is "inherent" in the spoken words that were reported. Unfortunately, however, respondents often are unaware of, do not remember, consider unimportant to mention, and have difficulty in verbalising (even when probed) such non-verbal activities.

This is not to suggest that the failure on the part of respondents to be aware of, to remember, to evaluate as important, and to be able to specify in words, the non-verbal interactions that occurred, is the only factor involved in obtaining reliable data on social interaction. In one genuine sense, social interaction can only be studied if the perceptions and activities of all individuals involved in a set of interactions, are obtained. One must be able to see not only how one person acted and spoke, but one must also have knowledge of how such action and speech was interpreted by the other party to the particular interaction under consideration. In our other field studies, data were frequently obtained from several persons who were together in a particular situation. In this study, the restriction of interviewing only one adult per household, precluded (except by accident) the obtaining of an interview with two or more persons who were together at the time of the disaster. The restriction was adopted to insure getting a wide range of respondents and with the realization that it would prevent the obtaining of certain data. To obtain a more balanced picture of what occurs in certain areas of behavior in disasters, it would be desirable that social interaction be studied from the viewpoint of all interactants in a situation.

An end result of too literal acceptance of respondents' statements, may be a serious underestimation of the importance of social interaction. For example, Table 3-6 summarizes (as reported by the respondents) the importance of social interaction in arriving at a threat definition. Accepting these data at face value, it would appear that social interaction was apparently not too important in defining the danger. While interaction occurred in nearly two-thirds of the cases, in only about one-sixth of the cases was it reported as important.[1] In about a quarter of the cases, although the respondent was present with other people, no social interaction concerning the possibility of a threat occurred. All this runs counter to the general impression a reader gets in going through the interviews; moreover, is in direct contradiction to what we found in our other studies, and is not in line with what is generally known about human behavior.

One indirect way of seeing how important social interaction really was, is to see if there was any association between the amount of forewarning and the presence or absence of interaction. Cross-tabulation of these factors

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[1] Respondents who were alone at the time of impact are not included in Table 3-6. They comprised approximately 13 percent of all the respondents in the impact areas.

Table 3-6

IMPORTANCE OF SOCIAL INTERACTION IN THREAT DEFINITION BY IMPACT RESPONDENTS

Importance of Social Interaction in Threat Definition	Percent of All Persons in Impact
Social interaction evident but relatively unimportant or importance not ascertainable	48
Social interaction relatively important in arriving at threat definition	17
No social interaction involving possibility of threat occurred	25
Importance of social interaction in threat definition not reported	8
Number of Interviews	121

indicates (Table 3-7 below) very definite association between social interaction and forewarning. Of those individuals who engaged in interaction with others, about 80 percent of them had some forewarning, whereas less than half of all those who did not engage in social interaction had any forewarning. It appears quite reasonable to conclude from this that, in many cases, interaction was responsible for the warning that these respondents had.

Table 3-7

SOCIAL INTERACTION BY AMOUNT OF FOREWARNING

Amount of Forewarning	Presence or Absence of Social Interaction		
	Respondent Alone	Respondent With Others	
		No Social Interaction	Some Social Interaction
No forewarning	56	70	20
Less than a minute	6	19	39
More than a minute	39	10	41
Number of Interviews	18	31	79

Consideration of the nature of the social interaction that occurred seems to indicate that it frequently centered around the meaning of cues. Less often, it focused on a course of action to follow. Individuals discussed with one another what certain cues meant, gave them names, called other people's attention to previously unnoticed happenings and events, etc. In this way the interaction served to sensitize and alert individuals to what was going on.

The roaring sound, because it so easily lent itself to ambiguous interpretations, appeared to have been one of the main objects of conversation. A typical discussion about the roaring went as follows:

> /After hearing roaring/ I thought that that was what was coming, it was a different roar, not like a train. I told my husband, I said, 'That's the roar.' And he said, 'No, that's a train because I hear the blower.' ...but I told him no, I didn't think so, because I'd heard one before. He said to come in here then. (Case R-310, p. 7)

It should be noted that the limited time most people had between when they began to be aware something was possibly amiss and when the tornado actually hit, did not permit too much interaction. This lack of time reduced the possibility of individuals arriving at a decision on what to do. Sometimes individuals were interrupted in their talking by the physical impact of the tornado. In such instances, no clear definition of threat had been reached and, thus, no course of action could follow from the social interaction as such. It would appear that, in many instances, a growing awareness of certain aspects of the situation, was the prime, and perhaps only, result of much of the interaction in the immediate pre-impact period.

In some instances, of course, social interaction not only alerted and sensitized people, but led to specific actions on their part. One such case is reported in the following:

> We were getting ready to go out. My brother-in-law and Mr. P....across the street, was looking at the cloud. He told us we had better get in the cellar. Me, I never was afraid of storms since I've been grown, anyway. So, I made kinda' fun of him and thought he was joking. And about two minutes before it happened, why he come over and told us that there was a cloud...I asked David /her husband/ I said, 'David, what does the cloud look like, do they look very bad?' He said, 'Aw, just a little rain cloud I guess.' Then I said, 'Well, we are going to the study /a church groc-/' and he said, 'Well, it all depends, unless it looks too bad.' ...It seemed like it kept on lightning. I'm afraid of lightning though, so I said, 'David, take another look out the door and see if you think we should go because I don't want to get ready and not go.' So he went out on the porch and I went to the door with him and he said, 'Well, we should go to the cellar'.... We made it just about two minutes before it happened. (Case R-373, pp. 1, 8)

Here, as was frequent when social interaction had time to develop, there was an interplay between verbal communication, the looking at cues, and the taking of specific actions. In most cases, however, the degree of awareness of threat did not reach the level of the case quoted above.

When the various impact areas are compared (Table 3-8) some sharp differences in the presence or absence of social interaction are apparent. The two extremes were Doniphan, where over half of the respondents had no interaction with anyone prior to impact, and Boldingville where 70 percent of all respondents engaged in social interaction with others. Moreover, as was noted earlier, it was in Boldingville that individuals had the most forewarning. Here again, the indirect examination of the importance of social interaction, shows a positive association in the expected direction even though direct reports are negative. Respondents in Boldingville engaged in the most social interaction and they had the most forewarning. Conversely, individuals in Doniphan engaged in the least interaction, and they had the least warning of all the areas that were hit by the tornado.

Table 3-8

SOCIAL INTERACTION BY IMPACT AREAS

Amount of Interaction	Percent of All Persons in Each Impact Area			
	Judsonia	Judsonia Rural	Doniphan	Bolding-ville
No interaction	20	6	53	18
Some interaction	59	65	30	70
Respondent alone or amount of social interaction not reported	22	29	18	12
Number of Interviews	86	17	17	17

An attempt was made to ascertain who it was that took leadership in the social interaction. However, while it was found possible to code overall leadership by a respondent, it was not possible to ascertain with any high degree of reliability which respondent initiated a conversation and who was most responsible for the particular definition arrived at in any specific set of interactions. The more general background factors regarding leadership are discussed in later chapters.

Nature of Actions Taken

Respondents engaged in a wide variety of activities in the immediate pre-impact period. Many of these activities were isolated acts, i.e., were not part of a sequence of acts of a similar nature. For example, an individual may have gone to look out of a window in order to ascertain what the roaring sound was, but have attempted no other investigatory activity. Instead, the person may have spent almost all the rest of his time in this period in closing the doors, locking the windows, dousing the stove, etc. We have labeled such series of similarly-oriented acts as a predominant activity--its precise nature depending on the general orientation of a set of similar acts. Thus, in the instance just cited, the predominant activity would have been coded as "precautionary" action.

In the first part of this section we will deal only with the predominant types of activities in the immediate pre-impact period. In the second part we will give a detailed breakdown of two of the most important types of action in this period--precautionary and protective action. In this last part we will describe all such activities rather than just the predominant precautionary and protective activities.

Table 3-9

NATURE OF PREDOMINANT PRE-IMPACT ACTIVITY REPORTED BY IMPACT RESPONDENTS

Predominant Activity in Pre-Impact	Percent of All Persons in Impact
Investigatory behavior	34
Precautionary activity	22
Giving protection to others	19
Protecting self (or self with others)	13
Protecting property	4
Receiving protection from others	3
Nature of predominant activity in pre-impact not reported	21
Number of Interviews	139

A summary of the predominant types of activities in the immediate pre-impact period is given in Table 3-9. The most frequent type of predominant activity was investigatory in nature. It was engaged in by just over a third of all impact respondents.[1] Primarily, this category has reference to either

[1] It was reported as an activity (but not necessarily "predominant") by 47 percent of all impact respondents.

seeking cues on weather conditions or, less frequently, to seeking information or orientation from other persons. It is illustrated in the following remarks:

> We didn't do anything, only just stand around, first one door and then another, looking out, you know. And looking at the cloud and listening at that roaring. (Case R-262, p. 2)

> It just turned dark and that roaring I heard it too. I went to the door and I looked out to see what it was. I couldn't see anything. It was so dark. I run through the house from one room to the other looking to see which way it was blowing. (Case R-230, pp. 1-2)

Of course, at times, investigative behavior rather quickly led to a definition of the situation. One respondent reported the result of his activity in this way:

> I hear it roaring, so I looked down the railroad track and didn't see any train. I looked up and I couldn't see anything. I looked twice and still couldn't see anything, so I knew it was something else besides a train. (Case R-346, p. 1)

Next to investigative activity, actions of a precautionary nature were the most common major activity in the immediate pre-impact period. A little less than a quarter of all impact respondents engaged in such precautionary acts as a major activity. These acts tended to be of two kinds. In the main they involved taking precautions against wind and water by closing or holding doors and windows, stuffing cracks and crevices, etc. As one respondent reported it:

> One of the doors blowed open. Me and my oldest boy here, we were just trying to hold it until we could get it fastened. (Case R-122, p. 3)[1]

Another form precautionary acts took, was the performance of actions with a view to preventing fire. This involved such behavior as blowing out candles and coal-oil lamps, dousing coal stoves with water, turning off gas or electricity at the source, etc. One respondent gave an account of the precautionary activities he took as follows:

> Went turned the fire out, that's when the wind first started. I went in the kitchen and turned the fire out and

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[1] As is clear from this quotation, the precautionary activity here was of a collective nature. This was quite often the case. Individuals acted jointly and in common with others in taking some particular precautionary action or other. The fact that the act is reported as the act of an individual should not obscure the frequent presence of joint or cooperative action. This applies also to much of the protective actions discussed in the following pages.

> turned the furnace out and when I got that through then—well, I followed with the tank, the hot water tank...that's the first thing I thought of, turn the fires out. (Case R-202, p. 6)

It may be observed at this point that the taking of precautions against fire was perhaps more widespread than it might have been under normal circumstances. As has already been noted, the electric power had failed prior to the storm. Consequently, many individuals had lit candles and lamps and were somewhat sensitized to the fact of an open fire. They ordinarily may not have been so aware of the possibility of fire.[1]

Almost as many individuals as reported precautionary behavior reported the giving of protection to others, as a predominant type of activity in the immediate pre-impact period. Included under this rubric of giving protection-to-others, is a wide variety of acts ranging from the providing of actual physical covering to admonitions to secure a safe location, as well as verbal reassurances that nothing personally serious was going to occur. The justification for including under the category of giving protection-to-others, such acts as verbal reassurances, is twofold. Such verbal remarks were frequently made in conjunction with unambiguously protective acts such as the dragging of another person under a bed or table. The remarks were, in one sense, part and parcel, of a clearly protective act. Furthermore, the verbal remarks appeared most frequently to have been directed towards children. Insofar as they served to inhibit children from doing things which might have endangered them, such as becoming hysterical and running off, such reassurances can be thought of as protective in nature.

The following example of giving protection-to-others, while not altogether typical—in that it involved the use of some force—does illustrate one form of this behavior. This respondent reported:

> After I knew there was going to be a storm I told her /wife/ to get under the bed quick...I told her to get the kids and crawl under the bed quick...the littlest one when I first mentioned get under the bed, he got under there like a squirrel in a knot hole. Right under there he went. But my wife and the biggest boy they wouldn't get under the bed. I crawled on under the bed and I said 'Come on, get under the bed quick.' She kept running from the window to the door looking you know. By that time it had already turned dark you know, it was very dark. Then she got close to the bed and I sneaked up and give her a push, a kick knocked her off balance and she fell down to the floor and started crawling under. (Case R-346, pp. 1, 4-5)

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[1] It is probable that these precautionary acts directed against the possibility of fire were influential in reducing the actual number of fires following impact. Only 3 fires were reported in impact areas and these were relatively minor ones.

More typical illustrations of other-protective behavior are as follows:

> I pulled some cushions off the couch and held them over our heads, in case something might strike us on the head. (Case R-358, p. 2)

> My little granddaughter, she is seven, came running in there screaming, 'Oh, daddy what am I going to do?' I said, 'You come to me.' I just held her with all my might and we stood there in the corner. (Case R-294, p. 7)

> And the kids was all around. Had him [husband] to hold this little one and I had the baby. We did ask the kids not to be scared, that I thought maybe it was going to be all right. (Case R-310, pp. 2, 5)

> Just reached down and picked the baby up and took him in my arms. (Case R-298, p. 2)

> I got the wife and daughter and rolled in the mattress... and after a few moments, of course, we began to have window panes break and hear things hitting the house. (Case R-150, p. 1)

> I told Donald, my husband, I said, 'Get those two boys away from the table and let's get in here in the front room.' And, of course, when they heard me speak, you know, they just ran and got right under me...I held them...I squeezed them so hard...I guess I just had a death grip on 'em. I know I did because I was gonna hold to them regardless of what come a wind. (Case R-322, p. 8)

Protective action as a predominant type of activity in the immediate pre-impact, was taken only by somewhat over a tenth of all impact respondents. Since details of the specific kinds of protective acts will be shortly presented, they need not be discussed and illustrated here. In general, the seeking and the obtaining of a place or situation of safety did not loom large in the immediate pre-impact period.

On the other hand, not a single respondent in our impact sample reported as a predominant type of behavior, panic flight, expressive behavior, or affect-laden immobility. Part of this, of course, is a function of the little forewarning the majority of individuals had. A more crucial point, however, is the simple fact that, in the face of danger, most people do not lose self-control and run in panic, break down in hysterics, or "freeze" on the spot. Most individuals in a crisis situation actively attempt to cope with it. The popular conception of complete personal disorganization and utter collective chaos in the face of danger, is not supported by our studies. Individuals may be greatly afraid, their behavior may be very highly anxiety motivated, but they will act--alone and with others--to control the situation they see themselves faced with. Throughout this report, as we document the reactions and responses of our

respondents in the face of various dangers and difficulties, we will see that most people maintained considerable self-control and were able to engage in, at least elementary concerted behavior.

Sex differences in the predominant types of actions taken, are slight and insignificant. Women engaged in slightly more investigative and precautionary activities than men, whereas men took more other-protective actions than women. Other activities were equally engaged in by men and women. Generally speaking, as far as the immediate pre-impact period is concerned, there is little evidence of sex differences in regard to predominant types of activities.

As might be expected, those individuals who engaged in storm oriented activities were those who had the most forewarning. This is shown in Table 3-10 below. The greatest difference in predominant actions is between those who had no forewarning at all and those who had over a minute's warning. The difference is not as striking between those who had some forewarning (but under a minute) and those who had over a minute. Thus, while a third of those with over a minute's forewarning engaged in precautionary behavior (as a predominant form of activity), nearly a fourth of those respondents with less than a minute's warning did likewise. Similarly, whereas 36 percent of those with over a minute's forewarning engaged in giving protection to others, so also did 29 percent of those with less warning than a minute. Thus, although the tendency to engage in some type of protective-precautionary activity was greater for those with more forewarning, the differences in amount of time available did not appear crucial in determining the predominant type of action.

Table 3-10

PRE-IMPACT PREDOMINANT ACTIVITY BY AMOUNT OF FOREWARNING

Predominant Activity in Immediate Pre-Impact	Amount of Forewarning		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Investigative behavior	27	37	42
Precautionary activity	12	24	33
Giving protection to others	—	29	36
Protecting self (or self with others)	2	21	20
Protecting property	4	3	7
Receiving protection from others	—	5	4
Continuation of routine, normal activity	25	13	2
Nature of predominant activity in pre-impact not reported	35	8	7
Number of Interviews	51	38	45

From the predominant types of action taken in the immediate pre-impact period we now turn to the specific types of precautionary-protective activity. In view of their importance, we shall here consider all such activities, not confining ourselves just to those actions which were reported as predominant.

As shown in Table 3-11 below, about a quarter of all respondents took some sort of precautionary or protective activity in the immediate pre-impact period. This compares, it may be noted, with the 22 percent that reported precautionary actions as a predominant type of activity, and only 12 percent that reported protective actions as a predominant type of activity. It follows then that many protective actions tended to be isolated acts which were not part of a series of acts. Or, put another way, the primary orientation of activity in immediate pre-impact was of a precautionary rather than protective nature although some protective acts occurred.

The very low percentage of impact respondents who took any sort of action towards property may be noted at this point. Less than one-tenth of our sample took any action which could be interpreted as an attempt to protect or safeguard property. And only four percent reported such acts as being a predominant type of activity.

Table 3-11 also shows the specific kinds of precautionary-protective action taken. As noted earlier, the precautionary actions primarily involved the engaging in of actions against wind and water and against the danger of fire. Slightly under one-fifth of the respondents took precaution against wind and water, and about one-tenth took precautions against fire. A scant four percent of our impact sample stated that one of their precautionary activities involved going to another residential structure. Such movement was generally for the purpose of being with others or in order to be located in a better built structure during the storm. However, this movement was not primarily protective in nature; it was mainly precautionary action taken against the possibility that the storm might be a very bad one. These actions were classified as precautionary rather than protective because the action was not based on a feeling of immediate, direct threat.

The most common protective action was the taking of cover in a particular location inside a structure. As one respondent reported it:

> ...and we just all got up from the table and moved back into the hallway to the bathroom...stayed there. (Case R-334, p. 3)

However, although taking cover inside a structure was the most common protective act it should be noted that less than one-tenth of all respondents took such action.

No other protective act was reported by more than four percent of the individuals in our sample. It is of interest to note that very few respondents went to a storm cellar or comparable structure. Given the lack of warning people had and the small number of storm cellars or equivalent shelters in the area, the small percentage of people who took such actions is not surprising. A very few individuals went outside to get protection. Some went outside to get into an auto or truck. Others left their houses to go outside

to get into a ditch. However, the overwhelming majority of individuals stayed in the structure in which they were located at the beginning of the immediate pre-impact period.

Table 3-11

NATURE OF PRE-IMPACT PRECAUTIONARY-PROTECTIVE TYPES OF ACTION TAKEN BY IMPACT RESPONDENTS

Nature of Precautionary-Protective Activity		Percent of All Persons in Impact
Any Precautionary Action	24	
Precaution against wind and water: e.g., closing or holding doors and windows		17
Precaution against fire: e.g., dousing stoves, blowing out candles		9
Going to another residential structure		4
Any Protective Action	24	
Taking cover in a particular location inside structure		9
Placement of self with relation to objects with protective goal: e.g., under table, bed, etc.		4
Going to storm cellar or comparable structure: e.g., vault		3
Going inside a structure from outside location		2
Getting inside a vehicle (car or truck) or going outside to get to a vehicle		2
Huddling together with others in mutual support		2
Protecting self by particular body position: e.g., crouching, ducking		1
Other goal-directed protective flight: e.g., going outside to get into a ditch		1
Property Oriented Action	9	
Number of Interviews	139	139

As for predominant activity, there is little sex difference in all precautionary-protective activities in the immediate pre-impact period. About 22 percent of the men engaged in precautionary activity compared with 27 percent of the women. Protective actions were taken by 26 percent of the men and

22 percent of the women.

It is fairly clear that the greater the amount of forewarning the greater was the tendency to take precautionary and protective action (see Table 3-12). Protective actions, especially, seem to have depended heavily on the length of forewarning. Protective action was reported by about ten times as many of the respondents who had over a minute's forewarning as by those who had no forewarning. For precautionary activities, the ratio was only about three to one.

Table 3-12

PRE-IMPACT PRECAUTIONARY-PROTECTIVE ACTIVITY
BY AMOUNT OF FOREWARNING

Type of Activity	Amount of Forewarning		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Precautionary activity	14	24	40
Protective activity	4	34	42
Number of Interviews	51	38	45

Although in this section of the chapter we have discussed forewarning, cues, social interaction, and actions separately, obviously they are part of one whole. They are not isolated but rather interrelated aspects. The following example gives at least a slight idea, of how these four aspects together functioned in the behavior of one particular individual.

> Got off from work five o'clock...walked down and talked to my brother at the store a few minutes. It begin to get dark and cloudier and chillier. So we stood there and talked a few minutes. I told him that my wife would be terribly scared if I didn't come on home 'cause she is pretty scared of a cloud. So it just kept getting worse...by the time I got home, just as I walked in the door the lights went off and of course my wife was frightened. And I went to make a round to see if all the windows were closed, and the bathroom window was open so I closed that. Went back to the den, sat down with my little boy in my lap. While we were sitting there why the wind started blowing gravel off the street--blew up against the house so I got up and went looked out the window again, and to see if I could tell what it was going to do. So it began to get darker

and I noticed the pressure you know, the atmospheric pressure was changed so rapidly it made a change in your ears and that I knew from what I heard that it--ah, that caused tornadoes. So, we huddled down in the corner of our den and my wife said, 'What are we gonna do?' I said, 'Oh, just kneel down here and pray.' ...I had the oldest little boy and my wife had the baby and we kinda, well, sat up on the floor...so we'd be as much protection for the children as we could. /The tornado then hit blowing the roof off the house and inflicting other damage/ (Case R-129, p. 4)

THE IMPACT PERIOD

In this section we will discuss the reactions of individuals during the impact period. By impact we have reference to the time period from the moment when the full fury of the tornado struck until the force of the wind died down. While it is very difficult to give an objective estimate of how long this period was, it appears from all the available evidence that the impact did not last longer than five minutes. Estimates of respondents ranged from "it lasted an eternity" (Case R-138, p. 1) to it "happened so quick that you just don't have time for nothing." (Case R-122, p. 3). This further illustrates the obvious inability of individuals under stress to estimate time--a fact to consider when instructions are prepared telling people how to act in a dangerous situation. In any event, the impact period is herein considered as having lasted about five minutes.

In this section we will first deal with the state of definition at the time of impact. Following that we will discuss the objects that respondents saw as threatened, the nature of the threat, perceptions of storm effects, and perceptions of the behavior of others. From that we will proceed to an account of the affective reactions and the actions taken by respondents during this period. The last aspect discussed will be the cues used to denote the end of impact.

State of Definition at Time of Impact

As shown in Table 3-13, individuals in the impact area at the time of impact overwhelmingly defined the storm as a tornado or at least as a storm definitely threatening injury, death or extensive destruction. All of these people did not specifically label the event as a tornado, but practically all of them did see it as something personally dangerous. Only a very few impact respondents thought of the tornado as an ordinary rain or thunder storm. There does not appear to be any one particular reason why these people misinterpreted the event. At the other extreme, only about one percent of the respondents conceived of the impact situation in such hyperbolic terms as "Armageddon" or the advent of the "Millenium." If anything, given the strongly religious orientations in this area, this is a lower percentage than might be expected. No one thought of a bombing, which, considering the weather cues and the relatively

isolated location of the area, is not surprising.

On the other hand, a large majority (nearly three-quarters) of those in t. on-impact areas thought the weather disturbance indicated an ordinary rain or thunder storm which was, in fact, the case for most of them. A few of these individuals actually had some minor damage done to their homes. However, they interpreted such minor destruction the same way they had interpreted the weather cues--i.e., as part of a "bad storm." As one respondent reported:

> I noticed a cloud out there...it just looked like a rain cloud to me...the clouds were kinda low and seemed to be traveling fast. It was flying low but I really didn't think it was a tornado...the cloud, it just didn't look dangerous to me...it started raining and everything...the wind kinda come in puffs like...it kinda blew hard...it did blow out the window pane here in the kitchen...and carried it about three feet and then broke it...I thought that's the first time it ever happened before--the wind ever been that bad--take out a window pane and carry it a little ways like that...but I really didn't think it was a tornado...it didn't look dangerous to me. (Case R-053, pp. 1, 5)

Some of the non-impact respondents who defined the event as a tornado or a destruction threatening storm, appeared to be individuals living on the periphery of the tornado struck area.[1] They either saw the tornado at a distance or suffered some minor damage to their homes. One individual in a rural area who eventually identified the tornado from afar reported his experience as follows:

> It was thundering and lightning back in the West...I told the little girl, I said it looks to me just like a summer storm ...so I came in and fixed supper and was just about to sit down to the table and eat supper--the wind began to blow pretty strong and it began to rain...I said we are just in a storm and about that time it begin to sound like a big heavy freight going through down here. I got up and walked on the front porch here and went on the north end of it and I said, 'Come here sister [to his daughter], I want to show you a storm, you have never seen one and I want to show you one. You hear all that noise, sounds like a freight train going through town that way?' She said, 'Yes.' 'Well,' I said, 'do you see that cloud over yonder twisting and aroaring and twisting right down on the ground?' She said 'Yes.' 'Well,' I said, 'that's a tornado.' (Case R-264, p. 10)

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[1] To some extent, however, definitions of a tornado by non-impact respondents are post-facto. After the news got about, there was, of course, considerable excitement over, and discussion of, the tornado in nearby areas and, as is usual in such cases, many vague definitions crystallised as definite impressions.

Table 3-13

STATE OF DEFINITION AT TIME OF IMPACT

Definition	Percent of All Persons	
	In Impact	Not in Impact
Tornado or destructive storm	85	17
Rainstorm or thunderstorm of ordinary proportions	6	74
Unformulated or confused at time	6	—
"Armageddon" or the "Millenium"	1	—
Impact definition not reported	2	8
Number of Interviews	139	158

Objects of Threat

Most individuals in the impact areas reported that they felt themselves or their immediate associates highly threatened at the time of impact. This can be seen from the figures given in Table 3-14. In the interviews very frequently no distinction was made between the respondent himself and others present. The pronoun "we" was used ubiquitously. Typical of such remarks is the following:

> We could feel the boards give and we just knew that we were in actual danger. We didn't really expect to come out alive. (Case R-138, p. 5)

Almost no concern was felt for individuals not present with those undergoing the impact. Part of this seems accountable for by the fact that most immediate family members were together; part by the fact that there was a very great underestimation of the extent of the tornado (see Chapter IV).

About one-tenth of all the impact respondents stated they felt concern about their property. Taken at face value this is misleading and overestimates the concern over property during the impact period. Since it was impossible in analyzing the data to distinguish between objects threatened in the pre-impact and impact periods, this finding is, in part, a function of such non-discrimination. Some individuals were worried initially about property, but, as the storm became more intense, they shifted their concern to the threat against self and other persons. In fact, many respondents specifically denied any concern, or even thought, about property while the tornado was in progress.

Table 3-14

OBJECTS PERCEIVED AS THREATENED IN PRE-IMPACT AND/OR IMPACT PERIOD

Objects Threatened	Percent of All Persons in Impact
Persons	
Self and others present	47
Self	33
Household kin present	24
Non-household kin or intimates	7
Objects vague or unspecified	7
Any other person	2
Property	
Own residence	12
Own business or farm	1
Property of any other person	1
No personal or property threat reported	12
Number of Interviews	139

Nature of Threat

As is shown in Table 3-15, of those respondents who identified the object of their fear, a majority singled out the threat involved in the possibility that the structure they were located in (or parts of it) would collapse on them. This is illustrated in the following remarks:

> Well frankly, I was expecting the wall to come right on top of us at any time. (Case R-150, p. 3)

> After hearing the roar I was expecting any minute for the house to cave in. (Case R-118, p. 4)

Nearly a third of the individuals involved also expressed a fear about the possibility of being hit by flying debris. This took two forms. There was the danger of being struck by solid objects such as furniture, picture frames, tree limbs, etc. There was also the threat involved in being cut by breaking glass. This was a very real danger in view of the fact that almost all homes in the impact areas had their window and door glasses shattered. One respondent

reported the dual threat from flying debris and glass as follows:

> The south windows went first and glass just flew all over us and I was trying to keep the coats over the kids' heads to keep the glass from hitting us...and an end table went by and I had to duck to keep it from hitting me...things were just flying thick and fast and we were afraid to even look up, afraid something would hit us. (Case R-276, p. 2)

Less than a quarter of the impact respondents had any fear about actually being blown away. Usually when this was expressed it was in connection with a concern that the whole structure in which they were located at the time would be blown off its foundation and sent sailing through the air. One respondent said:

> I felt like maybe the house would go any minute and we would go with it. (Case R-362, p. 22)

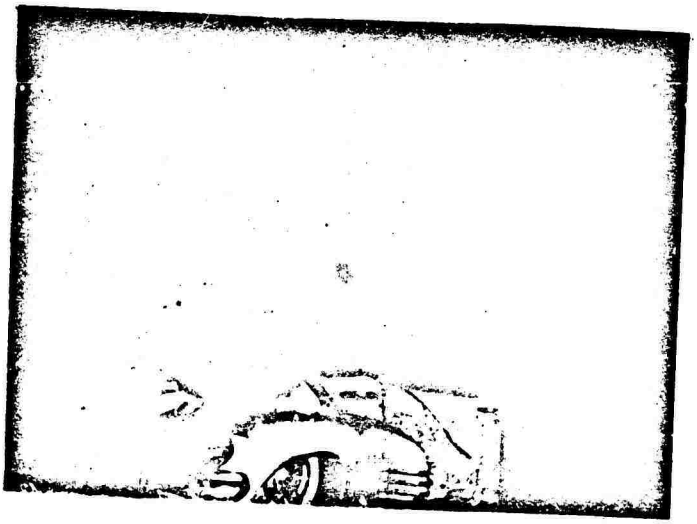
A few individuals felt afraid that fire would break out or that lightning would hit them. Actually, very few instances of fire were reported. It may be that the precautionary activity taken against fire noted in an earlier section of this report, contributed to this. No cases of persons being struck by lightning was reported by any respondent in this tornado, although a few respondents said they knew of such instances in previous tornadoes.

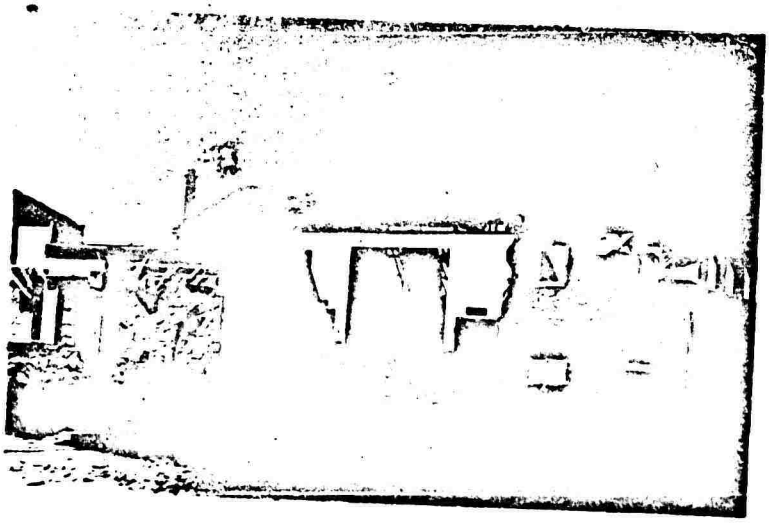
Table 3-15

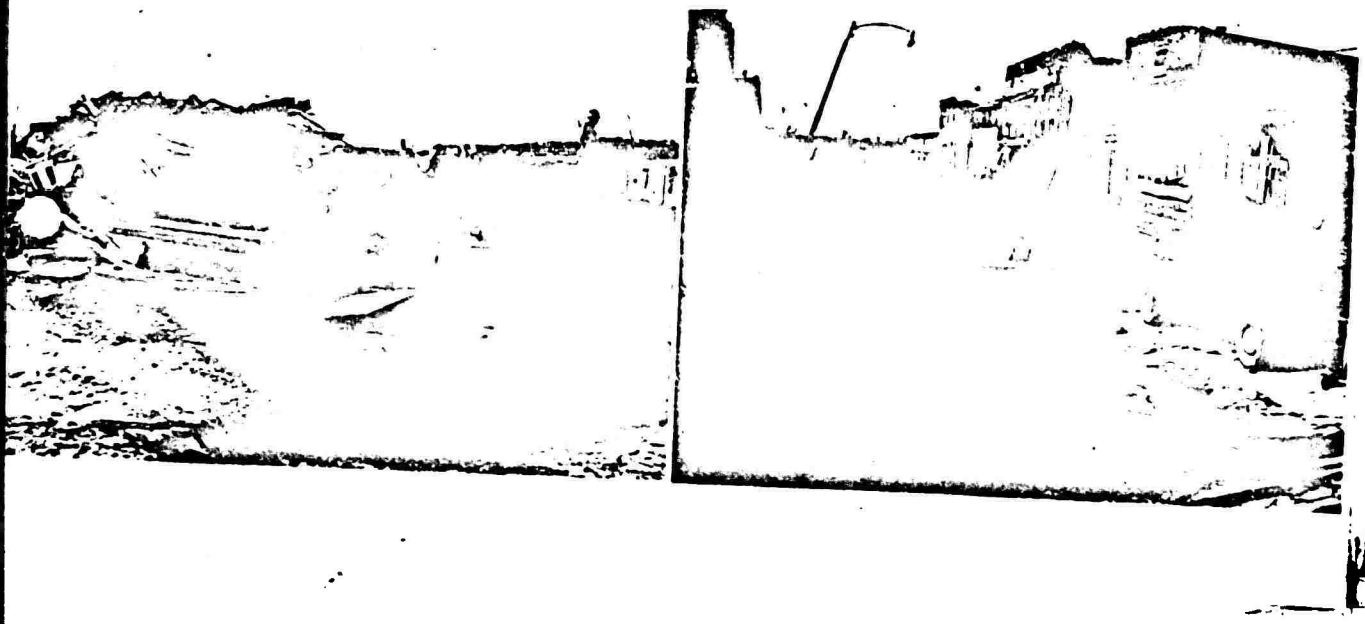
NATURE OF THREAT PERCEIVED BY IMPACT RESPONDENTS

Nature of Threat Perceived	Percent of All Persons in Impact
Collapse of structure or falling parts	54
Flying debris	32
Actually being blown away	24
Danger of fire	6
Being struck by lightning	6
Health threatened by aggravation of previous illness	1
Nature of threat not reported	24
Number of Interviews	139

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Perception of Storm Effects

The fear expressed by a majority of the impact respondents that the structure in which they were located might collapse on themselves and others with them was realistic in terms of what most persons actually perceived. As shown in Table 3-16, the great majority of individuals in the struck area saw the tornado actually ripping their homes apart. In this sense, most people in the impact areas could be considered as having had some sort of "near miss"[1] or narrow escape experience.

Table 3-16

PERCEPTION OF TORNADO EFFECTS UPON STRUCTURE, SELF AND OTHERS

Perception of Effects	Percent of All Persons in Impact
Upon Structure	
Minor structural parts falling or being torn away	67
House vibrating, moving, or being lifted off its foundations	63
Major portions of structure collapsing or being blown away	53
Upon Self	
Knocked down or about by force of wind or house movement	18
Struck by flying debris	18
Actually blown away by the wind	12
Trapped by cave-in or fallen structure	3
Upon Others	
Perceived others struck by flying debris, knocked down or blown away by wind	17
Perceived others being injured	1
No perceptions of wind effects reported	6
Number of Interviews	139

[1] This term has been given varying meanings in the literature. We use it here primarily to indicate the experience of those individuals who were, in an objective sense, highly exposed to the possibility of being injured or killed.

The majority of respondents perceived the blowing away, the caving in, or the collapsing of major portions (e.g., wall, roof, side, etc.) of the structure in which they were located at impact. Some typical comments illustrating this experience are as follows:

> It started tearing things down. And something hit the side of the house, and knocked a big hole in it and then I could see outside. (Case R-310, p. 4)

> The house was all caving in right behind us. (Case R-154, p. 1)

> And by that time the east and west end was all out of our kitchen. (Case R-298, p. 1)

Nearly two-thirds of all impact respondents felt the house in which they were located, vibrate, move, or actually lift off its foundations. There was, of course, tremendous variation, in what was actually perceived in this connection. Some respondents merely reported slight house movements. As one of them stated it: "The house started to quiver just a little bit." (Case R-246, p. 1). Other individuals, on the other hand, reported violent movements as the house was lifted off its foundations and set down perhaps as far as 30-40 feet away from its original location. One respondent reported as follows:

> The house shook and we felt like it was going to shake apart—it just take it up and give it like this about four times. (Case R-362, p. 2)

Although just over two-thirds of all the impact respondents reported they noted minor structural parts falling or being torn away, this is probably an underestimation of those who actually saw such things happening. An individual who saw his roof blowing off or a wall caving in was less likely to report in an interview that a few seconds earlier during the impact period the glass in his windows had shattered or that some of the plaster in a room had fallen. Included in this category also are those individuals who reported objects flying around inside the house. This was a rather common occurrence and added greatly to the danger of being injured. Comments of respondents reporting this are as follows:

> By the time we got to the back bedroom, why a lamp come a sailing in there. (Case R-326, p. 3)

> I don't see how we ever escaped the planks going thru the windows. (Case R-294, p. 2)

> Two or three brick come into the living room where I was standing. (Case R-130, p. 1)

Considering all this disintegration of structures it is not surprising that a number of respondents reported being hit, struck, knocked down, etc.,

and we turn now to a consideration of these physical effects on persons. The actual proportions of individuals who perceived a particular wind effect upon themselves is indicated in Table 3-16.

Somewhat under a fifth of all impact respondents were either knocked down or about by the force of the wind or house movement. One respondent reported as follows:

> It blowed me back through the house and up against the kitchen...it just seemed to me like I knocked the kitchen down, but I didn't. You know it took the front room, and when it took the front room, it left the kitchen open and when it took the front room, it took me with it and throwed me up against the kitchen and I hit the kitchen and about that time the kitchen hit the ground and it just seemed like I knocked the kitchen down. But the bed was already down and it throwed me up against it and it collapsed. (Case R-171, p. 6)

About a fifth of all respondents stated that they were struck by flying debris. Of course, the distinction between being buffeted about by the wind and being struck by debris, was often a somewhat dubious distinction. With all the objects flying in the air, with the walls collapsing, with the floors buckling, etc., being tossed about could hardly be attributed to any one factor. This is illustrated somewhat in the following report of one respondent:

> Just about the time we got into the kitchen why the house begin to go in. The tree on the west side of the house there blew over on the house, we could see that when it hit...it came down on the house and about that time you could hear the brush and timber and things cracking, and you know, just see it flying everywhere, falling all around us...the whole house... finally went off the foundation...the partition between the bedroom and the kitchen came over...the west outside wall came over on top of that. And then the porch roof, the west porch, the whole section of the roof, everything was on top of that, and then, a big section of the roof off my neighbor's house fell down on top of that. And the ceiling all just come down on all of us. We were just standing there when the storm was over, my head just sticking up thru the ceiling, where the ceiling had been. (Case R-165, pp. 1-2)

A little over a tenth of the impact respondents were actually blown away by the wind. This includes cases of individuals who were blown out of their houses and deposited on the ground (or in tree tops), often a considerable distance away. One respondent reported her experience in this connection as follows:

> About that time I felt the top of the house go off and I went with it. I never knowed no more till it was all over and when I found myself, I was in the top of a tree top, fork like

> this you know, wedged rite down between these forks of this tree. (Case R-302, p. 5)

Very few respondents were trapped by a cave-in or a falling structure. This, however, is not too surprising. The physical effect of the tornado tended to scatter structures rather than to collapse them. The tornado demolished the buildings it struck but, instead of leaving a pile of rubble as might occur in an earthquake or a bombing, it strewed the debris over a very wide area, literally carpeting the ground around.[1]

Respondents not only saw the effects of the tornado upon the structure in which they were located and upon themselves, but they also perceived other individuals being struck, knocked down, or blown away. A little less than a fifth of all impact respondents saw others being subjected to such treatment. One individual (who along with his small son was blown out of his home) reported as follows:

> [Referring to events after they were blown out of their home into the yard] I was losing him every little bit. Then I would get up and I hunt for him...I would lose trace of him ...and then I would see him again falling around and trying to stay on the ground. One time it blowed him against the post out there and he got ahold of the post and laid right flat down and then when he seen me, he got a glimpse of me and turned loose and come a tumbling. And that's just the way it was. Just rolling around and around like a bunch of stampeded horses. (Case R-171, p. 8)

Only about one percent of all respondents in impact stated they saw others being injured during this period. This is probably an unreliable figure. Possibly the fact that so many things were happening within a very limited period of time, did not permit the respondents to focus clearly on what was happening to other people. As a matter of fact, some injured respondents did not know exactly how or when they sustained their injury--some were not even aware of their own injuries until a considerably later time.

Perception of Behavior of Others

The general picture of group reactions that emerges from the reported observation of others present with the respondents at impact is one of relatively controlled goal-oriented behavior. As shown in Table 3-17, the majority of adults present were seen as maintaining self-control and engaging in various forms of elementary precautionary and protective activities. The following excerpts illustrate the reported perceptions of other persons' behavior.

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[1] Part of this effect is attributable to the wood frame construction of most of the houses in the area. In the business district of Judsonia which contained a number of brick buildings, several persons were killed or trapped by the collapse of buildings.

> By the time I got up there the door started to come open and we grabbed it, he and myself and the wife--we held the door. Well, my daughter and her two little children...my wife told her to take the two little fellows and run for the kitchen. So she did. (Case R-171, p. 1)

> And we all sagged against the west door and all six of us... all of us together held the door, but the storm had blown it off and we just held it by main force up there against the opening. (Case R-138, p. 1)

Only a few cases of uncontrolled and almost no cases of immobile behavior were reported. It is true that very few of the other people present with the respondents were perceived as calm, cool, and collected. However, even fewer individuals were seen as being in a daze or in a stunned condition. Of course, respondents may have misinterpreted the reactions of others.[1] It is also possible, of course, that the low proportion of individuals reported seen engaging in uncontrolled, immobile, and stunned behavior, is a function of conformity to social norms. That is, respondents may have been reluctant to report others, for the most part immediate family members, as engaging in behavior deviating from the socially approved. However, this seems quite unlikely for exactly the same type of behavior was reported for a greater proportion of individuals for another time period.

There were some sex differences in how others were seen as behaving. Women more frequently than men were perceived as losing self-control and as exhibiting affect (although controlled). Likewise, women more often than men were seen as receiving protection from others and as praying. However, for the most part, while they are in the expected direction, the differences are not substantial and are probably not statistically significant.

As might be expected, certain differences were observed between adult and child behavior. These differences were: (1) adults more often than children engaged in precautionary-protective activity; (2) adults almost exclusively gave protection to others; (3) adults maintained greater self-control than children; and (4) children received much greater protection from others than did adults. No child was reported to have been in a stunned, shocked or dazed condition.

The observations of adults regarding children took the following forms:

> The baby didn't cry, the little girl did. My son's children didn't. (Case R-294, p. 19)

> But Bobbie, he's 6, he's just as calm, he didn't utter

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[1] However, insofar as individuals guide and direct their own behavior on the basis of how they think others are behaving, the actual reactions of others could not have been too crucial in the determination of the behavior of respondents. For a further discussion of the nature of the social situation at impact see Chapter VII.

a word, he didn't even cry [In contrast to younger and older brothers and sisters who became hysterical]. (Case R-322, p. 3)

[Reference to her little boy] He never did seem to be too much excited by it. He was right with me--right beside me, trying to keep me quiet and down. (Case R-154, p. 3)

I know the boys they was just playing around there... they was just around the house trying to help us...they didn't act like they were scared a bit. (Case R-122, p. 10)

Because they were crying, hollering and taking on. My oldest girl, she was really scared. My oldest boy, he just stand there and cried. (Case R-310, p. 5)

Table 3-17

RESPONDENTS' OBSERVATIONS OF THE BEHAVIOR OF OTHERS

Respondents' Observations of Others	Reporting Observations of		
	Men	Women	Children
Engaging in precautionary-protective activity	37	35	14
Giving protection to others	15	15	1
Receiving protection from others	1	12	27
Experiencing great affect and/or uncontrolled behavior	2	11	17
Experiencing affect but behavior controlled	17	26	15
Praying	10	16	10
Calm, cool and collected	4	3	6
Stunned, shocked, dazed	2	1	—
Investigating	1	1	1
Immobilized	1	1	—
Unconscious	—	1	—
Acting towards property	—	—	—
No observations of others reported	45	29	47
Respondent alone	13	13	13
Number of Interviews	139	139	139

It should be observed that while the evidence is in the expected direction, and although a few of the differences reported are substantial, the general picture of group behavior at impact that emerges should be accepted with some caution. In any number of cases, various combinations of the different

aspects of behavior listed in Table 3-17, occurred. Such complexes of behavior do not emerge from the findings as presented above. They do not show that a respondent, for example, could have been in a situation where several people were calm, where others were highly excited but controlled, and where perhaps someone was hysterical. Furthermore, the high proportion of the three sex catsgories for which no observations were reported, is a factor to be considered. If there had been complete reporting on observations of others the picture of group behavior that might have emerged might have been different.

Affective Reactions[1]

The most outstanding aspect when the affective reactions of respondents during pre-impact and impact are considered, is the great degree of self-control that was reported. Nearly one-fifth of all the impact respondents stated that they were calm and unexcited. A considerable number of individuals did report they were either highly or mildly agitated, but only a very few stated that they lost self-control. It would appear from this (and other evidence to be presented later) that most respondents were able to control their anxieties and fears. While it is possible that the reported self-control actually represented affective immobility induced by overwhelming terror, the reported actions of people during impact are consistent with the picture of controlled behavior.

On the other hand, the low proportion of individuals who stated that they were in a state of "shock" or were stunned or dazed, may be underestimated since individuals' awareness of such conditions is probably less vivid than their awareness of more active affective states. The time lapse between the event and the interview may also have introduced some memory distortion. Furthermore, there was considerable coding difficulties when the respondent used such words as shock or stun.

However, generally speaking, the impression that emerges from the evidence is one of frightened persons engaging in relatively self-controlled behavior.

It may be, of course, that the very low proportion of individuals reporting loss of self-control, stems from a reluctance to report behavior deviating from the socially approved. This might be especially true of men. However, it should be noted that what respondents reported as the affective reactions of themselves fairly well parallels what respondents observed of the affective reactions of others. This is to say that respondents in general reported others maintained self-control. Certainly, taking all the available

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[1] For examples of affective reactions, see the interviews in Volume II, A-1 through A-8. No illustrations are presented in this section, because short excerpts or phrases about affect very readily lend themselves to misinterpretation. The words that a respondent uses to describe his affect can be accurately interpreted only within the context of the whole interview.

Table 3-18

AFFECTIVE REACTIONS DURING PRE-IMPACT AND IMPACT*

Nature of Affective Reaction	Percent of All Respondents	Percent of Male Respondents	Percent of Female Respondents
Highly agitated state but behavior controlled	32	25	39
Highly agitated state--involving uncontrolled behavior	1	--	3
Highly agitated state--degree of control unstated	6	3	10
Mildly agitated state but behavior controlled	19	21	18
Mildly agitated state--involving uncontrolled behavior	1	--	1
Mildly agitated state--degree of control unstated	6	6	6
Confusion, uncertainty, bewilderment	7	8	6
Shocked, stunned, dazed	6	3	9
Shocked, stunned, dazed--due to physical concussion	1	--	1
Unconscious	1	--	3
Calm, unexcited, self-controlled	19	26	12
Miscellaneous--anger, resignation, hostility, etc.	4	4	4
No affective reactions reported	8	11	4
Number of Interviews	139	72	67

* The affective states reported are primarily those occurring during impact. In some cases the affect may have initially manifested itself before actual impact but continued on into the impact period. In the few cases of difference between pre-impact and impact affective state, the impact affect was coded.

direct and indirect evidence, there is little reason to doubt that respondents on the whole attempted to report their affective reactions truthfully. There was relatively little denial of fear and anxiety as such. Respondents did say they were extremely frightened and their frankness in this regard lends greater credibility to denials of having lost control over behavior. However, the reports cannot be taken completely at face value, and should be viewed primarily as indicative of a general tendancy. Reports of affect in others do suggest more affect than the direct reports of the respondents on their own affective

states but the differences are small and the two sets of data are not strictly comparable.

When the sex of the respondent is taken into account, the expected differences in affective reactions emerge. Women admitted to more loss of self-control than men and conversely a greater proportion of men claimed to have remained calm and unexcited (in most cases, the claims are supported by other evidence). Women accounted for all instances of uncontrolled affect. However, it should be noted that very few of the women reported such behavior (between 3 and 4%). Relatively more women than men reported that they were highly agitated or shocked, stunned or dazed. On the other hand, the less severe affective disturbances (milder agitation and confusion, uncertainty or bewilderment) were reported about equally often by men and women.

The general picture appears to be that women experienced a greater intensity of affect than men, but both sexes manifested little loss of self-control. This is in line with what respondents reported they observed others doing. A majority of respondents got agitated, women more than men, but few individuals got so excited as to lose self-control.

The amount of forewarning an individual had appeared to have a dual and somewhat divergent effect on the affective reaction experienced. As shown in Table 3-19, lack of forewarning resulted in some people being confused and bewildered. However, a greater proportion (a quarter of those who had no forewarning compared with about a tenth of those who had a minute or more of warning) reported that they were calm and unexcited when the tornado hit. On the

Table 3-19

AFFECTIVE REACTIONS DURING PRE-IMPACT AND IMPACT
BY AMOUNT OF FOREWARNING

Nature of Affective Reaction	Percent of Impact Respondents Who Had		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Highly agitated state but behavior controlled	24	37	38
Mildly agitated state but behavior controlled	22	26	13
Confusion, uncertainty, bewilderment	14	3	4
Calm and unexcited	25	18	11
Number of Interviews	51	38	45

other hand, 38 percent of those with some forewarning versus 24 percent of those who had none, stated that they became highly agitated but maintained self-control. However, judgments of degree of agitation (both on the part of the respondents and of the analysts) are probably rather unreliable. If all agitated states are considered, the evidence suggests approximately equal frequency of agitated reactions on the part of those with no forewarning and with extended forewarning (more than a minute) and a somewhat greater prevalence of agitation among the respondents who had only brief forewarning.

In spite of their probable unreliability, the above findings would seem to suggest that the kind of affective state evoked was not primarily dependent on the amount of forewarning per se. Other factors that may be of greater importance are discussed later in this report.

Initial Action Taken During Impact

As shown in Table 3-20, the initial type of action taken at impact by the majority of individuals was either of a protective or precautionary nature. Over three-quarters of all the persons in the impact areas took such an action. Almost one-fifth of all these protective-precautionary acts involved the protection of others. Very few respondents were initially immobilized by the danger and just as few waited for others to protect them. Not a single case of panic flight or expressive (i.e., "hysterical") behavior was reported.

Table 3-20

INITIAL TYPE OF ACTION BY RESPONDENT DURING IMPACT PERIOD

Nature of Initial Type of Action	Percent of All Impact Respondents	Percent of Male Respondents	Percent of Female Respondents
Protecting self (or self with others)	40	39	42
Precautionary activity	19	22	15
Giving protection to others	19	17	21
Investigating	3	4	1
Receiving protection from others	3	1	4
Immobility	2	3	1
Initial type of action not reported	14	14	15
Number of Interviews	139	72	67

The most frequent initial protective actions appeared to have involved: (a) taking cover in some particular location inside the structure (for example, against the wall); (b) placing oneself behind or under some solid object such as a table, bed, or sofa; and (c) falling or crouching on the floor. Typical comments about these initial protective acts were as follows:

> We just all got up from the table and moved back into the hallway to the bathroom. (Case R-334, p. 3)

> I knew it was something else besides a train. I told her to get the kids and crawl under the bed quick, so we all piled in. (Case R-316, p. 1)

> I sat right down on the floor. (Case R-310, p. 2)

The most common precautionary act appears to have been holding the door. In most instances this involved pushing against it or firmly locking it. In a few cases it actually involved nailing the door shut. In a number of instances, this kind of activity may have been just as much protective in actuality as it was precautionary in intent, but it has been classified here as precautionary.

Only very slight differences between men and women in the initial type of action taken during impact were reported. A greater proportion of men than women took precautionary activities. This slight difference may be accounted for by the fact that, if a door had to be held closed (and most precautionary activity was of this specific nature), a man was more likely to attempt it.

How adaptive these initial precautionary-protective activities were in relation to the particular types of threat faced by each person upon the initiation of impact is virtually impossible to determine. In general, the relatively low death and serious injury rate in relation to the heavy destruction that occurred would seem to be a partial indicator that such initial acts were probably somewhat effective in minimizing deaths and injuries. Some direct evidence of the effectiveness of such acts is given in those interviews where respondents reported parts of a wall fell upon the bed or table which they were under, or in which they reported flying debris or glass went over them as they laid or crouched on the floor. Only in an extremely few cases did any respondents report they engaged in any action which in retrospect, they thought might have endangered themselves. There is, however, some indirect evidence that continued precautionary actions were, in general, non-adaptive and it is fairly obvious that continuing an effort to hold a door shut when the house is blowing away serves little useful function.

There is a fairly clear indication that those individuals who had forewarning compared with those who had no warning were more likely to take as the initial act a protective action of some kind. As shown in Table 3-21, 3-4 of all respondents with some warning took a protective action,[1] compared with

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[1] Including protective actions towards others.

only about a third of those with no warning. Individuals with no forewarning were more likely to take a precautionary action instead. In short, warning was associated with protective activity, no forewarning with precautionary activity.

A more detailed and analytical discussion of the relationship between forewarning and initial activity is presented in Chapter VI.

Table 3-21

INITIAL TYPE OF ACTION DURING IMPACT PERIOD
BY AMOUNT OF FOREWARNING

Type of Action	Percent of Impact Respondents Who Had		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Protecting self (or self with others)	31	39	53
Giving protection to others	6	34	22
Precautionary activity	29	18	7
Investigating	—	—	9
Receiving protection from others	2	5	2
Immobility	6	—	—
Initial action not reported	25	3	7
Number of Interviews	51	38	45

Predominant Activities in Impact

As shown in Table 3-22 below, there was a very strong tendency for the initial type of action taken in impact, to be continued as a predominant mode of action during all of impact.[1] Of all individuals who initially took a protective act, fully 93 percent of such individuals continued to engage in protective activity. Just about as high a proportion of respondents continued into the impact period as a predominant mode of action their initial protective-of-others actions. As might be expected, somewhat fewer but still about two-thirds of those who initially engaged in precautionary action mainly engaged in such activity during impact. Only a very few respondents that initially engaged in protective or precautionary activity changed to predominantly expressive behavior or immobility.

[1] For this purpose only initial actions of a protective, precautionary or protective-of-others nature were considered. The relative rarity of other initial acts precluded obtaining any significant relationship with reference to later predominant activities.

Table 3-22

RELATIONSHIP OF INITIAL ACTIVITY AND LATER PREDOMINANT ACTIVITY

	Initial Protective Act--Later Protective Activities	Initial Other-Protective Act--Later Other-Protective Activities	Initial Precautionary Act--Later Precautionary Activities
Percent of all impact respondents	93	92	65
Number of Interviews	56	26	26

As is shown in Table 3-23, the predominant modes of activity during impact were protective actions and the giving of protection to others. No other mode of activity was primarily engaged in by as much as one-fifth of all the impact respondents. It should also be noted that the action which ranked fourth in regard to the proportion of individuals who took it was precautionary activity. And sometime specific acts of this sort, e.g., holding a door, was just as much protective as it was precautionary. At any rate, it is fairly clear that during impact a great majority of our respondents primarily engaged in some sort of protective activity; they took actions to protect themselves or those with them.

Although the majority of individuals that underwent impact experienced fear and anxieties of various sorts, almost all of these persons were able to control their fear and attempt to protect themselves. Completely uncontrolled or non-rational behavior was reported only a few times. Not a single case of panic[1] as a predominant type of activity was reported. The complete absence of panic[2] is not surprising for the threat situation created by a tornado does not really allow for potential escape--without which possibility panic flight does not occur (see Volume III, Appendix B-10). A few persons, however, did engage primarily in expressive behavior. This usually consisted of random uncoordinated activity involving moving about distractedly, crying, screaming, shouting, wringing hands, etc. A similarly low proportion of respondents were unable to act in the situation, i.e., they reported themselves being primarily

[1] Panic is used here in the sense of uncontrolled flight behavior.

[2] No specific act of panic or uncontrolled flight was reported during impact.

Table 3-23

PREDOMINANT TYPES OF ACTION DURING IMPACT

Type of Action	Percent of All Persons in Impact
Protecting self (or self with others)	58
Precautionary activity	16
Giving protection to others	41
Investigating behavior	4
Receiving protection from others	17
Immobility	4
Expressive behavior	4
Inhibitory	1
Protective of property	1
Uncontrolled flight	--
Nature of predominant activity not reported	9
Number of Interviews	139

immobilized. This inability to act seemed to have resulted from affective incapacitation, fatalistic resignation or anguished indecision. However, even if all cases of expressive behavior and immobility are taken together and allowing for error in reporting and classification, it is quite clear that a very low proportion of individuals engaged primarily in such uncontrolled or non-rational activity.

It should be observed that in certain instances uncontrolled or non-rational behavior in disasters does occur. Dramatic and spectacular cases could be cited even from our own studies. Accounts of disasters are, however, plagued by the presentation of atypical instances as if they were the predominant modes of activity. That such generally uncontrolled and non-rational reactions are distinctive or typical of disaster behavior, is not supported by our findings in this and other field studies.

Specific Protective-Precautionary Activity

In the previous section we presented the predominant types of action taken by respondents during impact. In this section all precautionary-protective activities engaged in during impact are discussed. They need not have been the major action of the respondent.

Practically the only precautionary activity engaged in during impact consisted of taking precautions against wind and water by holding or closing doors and windows. Nearly a third of the impact respondents engaged in such activities. The only other precautionary activity of any note consisted of taking precautions against fire by blowing out the candles and lamps, extinguishing fires in stoves.

Table 3-24

PRECAUTIONARY AND PROTECTIVE ACTIONS TAKEN IN IMPACT

Type of Precautionary-Protective Action	Percent of All Persons in Impact
Precautionary	
Taking precautions against wind and water	31
Taking precautions against fire	3
Protective	
Taking cover in a particular location inside the house	40
Placing oneself behind or under a solid object	24
Lying or crouching on the floor	21
Huddling together with others in mutual support	14
Anchoring or bracing oneself by holding on to objects (e.g., bedpost) or parts of structure (doorframe)	5
Going outside and getting in a vehicle	4
Going outside to get in a ditch	2
Going outside to a storm cellar or comparable structure	2
Going inside a structure from outside	1
Nature of precautionary-protective activities not reported or no such action taken during impact	17
Number of Interviews	139

The most frequent protective activity consisted of taking cover in some particular location inside the house. Often this involved moving against some wall, less frequently it involved going to another room in the house. About 40 percent of all respondents reported they took such an action. The next most frequent protective activities consisted of placing oneself under or behind some solid piece of furniture such as a bed, table or sofa, or seeking to protect oneself by lying down or crouching on the floor. In many instances, of course, a particular protective act encompassed two or more of the above activities. For example, some respondents lay on the floor under a table.

No other protective action was taken by more than about a seventh of all the impact respondents. A few individuals did attempt (and for the most part succeeded) in going outside and getting into a vehicle. Others went outside to get into a ditch. A very few individuals who happened to be outside in the open at the beginning of impact, made their way into a structure. It should be emphasized that none of the behavior just mentioned was uncontrolled or non-goal directed. Some of those who went outside to get into vehicles, for example, did so because the house they were in was crumbling around them. Such activity was controlled and goal-oriented.

It should be observed that some precautionary-protective activities were not successful. That is, respondents in the middle of such an act sometimes were directly struck by the tornado. One respondent put it this way:

> We started out going into the living quarters when the front went. Then we started out for the west door, and before we went to the west door, it blew us out in the yard. (Case R-208, p. 1)

Another respondent stated:

> The door started to come open and we grabbed it...we held the door...all of a sudden the whole front end of the house lifted up and went away with us and my front porch. (Case R-171, p. 1)

Still other respondents reported giving up on one kind of activity and attempting another. One individual stated:

> Tried to hold the front door to, never could get it back fast...so the little boy said, 'Daddy, I don't believe we're going to be able to hold,' and I said, 'No, let's go son.' So we just ran back through the house, back through the front room to the bedroom into the kitchen. (Case R-165, p. 1)

The actions protective of others that were taken in impact were of the same nature as those that were taken in the immediate pre-impact period. In fact, the actions protective of others taken during impact were largely in the nature of continuing actions that were begun prior to impact. And as indicated earlier, almost all individuals who took as an initial act the giving of protection to others, continued to engage in such activity during the impact period.

Praying

Nearly a third of the respondents reported that they prayed sometime during the immediate pre-impact and impact periods. This is not at all surprising, when one considers the highly religious background of most of the people in this area. Furthermore, for individuals who engaged in prayer, it

was frequently a form of seeking protection from "others." Respondents referred to praying in various ways--for example:

> I realize how weak I am, and the first thing I think of is praying. So that is what I did. All the way through, asking God to take care of my family, while I was watching that He did. (Case R-294, p. 1)

> Well, my first thought was--was I ready to go...I just wondered and I was just praying for dear life that I was ready because I do try to lead a Christian life...my main thought was--was I ready to go? (Case R-202, p. 5)

> I was thinking of the Lord...that's what I was studying about. Lord take care of me and the ones that was in the house there with us. (Case 298, p. 6)

> I just asked for forgiveness of our sins and for Him to protect us and to take care of us in the storm. (Case R-230, p. 3)

Reactions During Impact

Although in the various parts of this section on impact reactions we have treated different aspects separately, obviously they were not such atomized entities in actuality. For expositional purposes, however, such a presentation has some justification. Nevertheless, in order to give some idea of how all the different aspects functioned as a whole in the behavior of particular individuals, the following two examples are presented.[1] The first is a respondent who was with her children, the second is a woman who was alone at the time of impact.

> I told the children, I said, 'there's a storm on--looks stormy outside.' I looked to see if I could see my husband coming and I could just see the glimpse of the car coming down the road and the sheets of rain start blowing in the air.
>
> So I begin to study what I was going to do with the children--where we was all going get and I wondered if he [her husband] was coming in--I stood at the front door and held the front door--seeing whether he was coming in or--...not--and after I seen he wasn't going to make it I latched the door, fastened it good.
>
> Then I begin to try to get the kids together, see what I could do with them. Where'd there would be the best place.

---

[1] For further examples see the interviews presented in Volume II, Appendices A-1 through A-8.

and the glass was just going everywhere and everything was just blowing all to pieces and I just couldn't go in there it looked like.

So I started back into the room where I was and into the bedroom and I thought while I would get under the bed, that was the first thing I thought of was getting under the bed.

/Then the front door blew open/ so I went then and tried to hold the door to and of course I didn't do a bit of good because the lock was all blowed out.

/Apparently the wind switched direction and was hammering the house to pieces/ and I started for the bathroom. I had an old-time kind of bathtub, stands up on legs you know, and that's all the protection I could think of.

And I started into the bathroom and, of course, when I did that, it struck my bathroom and it just looked like it was going to tear it all so I thought I would get to the kitchen door. I was really going to try to get out and I couldn't, the door was jammed and I couldn't get out...I had a little willow tree out there and I was going to try and get outside and lay flat on the ground and put my arms around that little tree, see if I could hold myself there...I had heard of people doing something like that.

And I couldn't get the back door open and I went back into the room where I was, then I seen that it was dying down. (Case R-359, pp. 1, 2, 7)

Cues Used to Denote End of Impact

The cues signifying end of impact for over two-thirds of the respondents were weather indications per se such as a diminution in the wind or the lightning of the sky. Remarks illustrating this are as follows:

Seemed like it just all cleared up--just seemed like it was over...of a sudden it was gone, the rain quit, it got light. (Case R-246, p. 35)

Then it just seemed like a matter of seconds, five seconds or so why it was light all over and the wind was over. (Case R-118, p. 3)

You could tell the minute it was over it got light. (Case R-294, p. 16)

Well, it got brighter, it lightened up some...as soon as it lightened up why then I thought it was probably over. (Case R-346, p. 23)

A little more than one-tenth of the respondents accepted as signs of the end of impact the cessation of objects falling or blowing around inside the house. A little less than a tenth of the impact respondents took as the cue the fact that objects stopped blowing around outside. Only a few, about three percent, required a verbal statement by another individual that it was safe to go outside as one of the cues signifying the end of danger.

Table 3-25

CUES USED BY IMPACT RESPONDENTS TO DETERMINE END OF IMPACT

Nature of Cue	Percent of All Persons in Impact
Weather indicators per se--cessation of wind, end of roaring, lightening of sky	68
Inside effects--objects inside house ceased falling or blowing	12
Outside effects--objects stopped blowing around outside	8
Told by another it was safe to go out	3
Movement of people outside, seen or heard	1
Cues used to determine end of impact not reported	25
Number of Interviews	139

CHAPTER IV THE DISASTER SEQUENCE: POST-IMPACT

This chapter, which primarily reports on the post-impact activities and reactions of individuals up to the time when the field study was concluded, is divided into two parts. The first part gives a description of the activities of our respondents the night of the tornado. The second part reports the reactions of the persons in our sample in the later post-impact period.

This chapter focuses on the individual and his behavior. The next chapter will deal with formal organizational activities and the relationship of individuals to such activities. However, this descriptive distinction between individual and formal organizational behavior should not obscure the fact that many activities were performed by both. Thus, individuals as well as organizations gave relief and rehabilitation assistance, administered first aid, provided information, etc. There were, it is true, some major differences in the relative proportion of certain activities performed by individuals compared with organizations. For example, rescue work was conducted almost exclusively by individuals or small informal groups, whereas medical care (except for first aid) was overwhelmingly administered by hospital personnel. Still other activities, for example, restoration of community services, control functions, and re-establishment of communications, were exclusively performed by specific organizations. All such formal groups are discussed in the next chapter. This chapter confines itself to individual rather than group activities.

THE POST-IMPACT NIGHT

The term "post-impact night" refers to the time period from when the force of the wind died down to dawn the next day. Roughly this covers a twelve hour period. It extends from about 5:45 P.M. on Friday, March 21, to around 6:00 A.M. on Saturday, March 22.

Assessment

That a tornado had struck their locale was known before the end of impact (or within 15 minutes after the end of impact) by almost every one of the respondents in the localities that were actually hit. Not everyone applied to the event the correct technical name of tornado, but they all generally thought of the storm as of a much greater magnitude than even a very bad thunderstorm or big wind. Those very few impact individuals who did not, within a quarter hour, define the event as a tornado appeared to have been in relatively isolated locations and to have suffered rather slight house damage.

As might be expected, the non-impact areas showed considerable

variation in the time when they learned of a tornado (see Table 4-1). Only about 16 percent of the respondents in the non-impact areas knew of the tornado within a quarter of an hour after it had struck. This is of considerable importance, for it means that, at a time when the struck areas were initially attempting to extricate themselves from the effects of the tornado (e.g., starting rescue work), the non-impact areas were in general unaware that anything unusual had happened. Given the fact that it would have taken some time to get into the stricken areas, this actually means that for about the first half hour, individuals in the impact area, generally speaking, had to depend on themselves alone for anything that had to be done immediately.

A majority of respondents in non-impact areas, however, did learn of the tornado within an hour (or by approximately 7 o'clock that evening). Not everyone of these people, of course, knew each of the localities that had been struck, but they did learn, at the very least, that a tornado of considerable magnitude had hit somewhere in White County. In this connection it may be noted that there circulated some false reports about what localities and communities had been struck. Georgetown, in the southeast part of the county, for example, was reported as having been hit.[1] Overall, however, there did not appear to be too many such false reports.

While the overwhelming majority of non-impact respondents learned about the tornado some time prior to midnight, about one-seventh of them did not have knowledge about it until the next day. That as high a proportion of individuals did not learn of a tornado until after daybreak on Saturday is partly accounted for by those persons who lived in relatively isolated rural areas. Unless someone came looking for them, they would not have had much opportunity to hear the news from others, and, the electric power being knocked out, they could not have heard the news over the radio. The night being very stormy, it was also very unlikely that the people in rural areas would have gone visiting or shopping. It may be, too, that these factors are as equally applicable to some townspeople who did not learn of the tornado until the next day.

Whereas almost all people in the impact areas knew of the tornado primarily as a result of undergoing impact itself,[2] most people (over three quarters of the respondents) in the non-impact areas first learned of the storm when told of its occurrence by someone else. Typical reports are as follows:

> First thing I heard was when a neighbor came in and said Judsonia blowed away. (Case R-054, p. 1)
>
> Our neighbor came over and told us...the tornado had hit Judsonia. (Case R-072, p. 1)
>
> At 10:00 P.M., son-in-law came...told us how Bald Knob had blown away. (Case R-226, p. 5)

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[1] For a further discussion of false reports circulating that night see Chapter V.

[2] Through their own direct experience or as a result of localized inspection.

They came and told me Doniphan had been blown away. (Case R-314, p. 1)

Neighbor of ours who had been in town...got here, told us it had completely blown away. (Case R-246, p. 11)

It will be noted that, in the above examples, someone came to the respondent with the news. This appears to have been the typical pattern. The non-impact respondent generally learned about the tornado, not as a result of his own effort, but as a result of someone coming to him and informing him of the event.

Table 4-1

TIME WHEN DEFINITION OF THE TORNADO WAS REACHED BY NON-IMPACT RESPONDENTS

Time of Tornado Definition	Percent of All Persons in Non-Impact
Within 15 minutes of impact	16
Within an hour after impact (or by 7 P.M.)	41
Within six hours after impact (or by midnight)	27
By daylight next morning	1
Sometime the next day (Saturday)	13
Sunday or later	1
Time when tornado definition reached not reported	1
Number of Interviews	158

It is true that a number of respondents in the non-impact areas had become aware after the storm of certain events and cues which they interpreted as signs that something somewhat out of the ordinary had happened. Some of them made an active effort (i.e., involving movement or inquiry) to clarify or define the events or cues which attracted their attention. The wailing of sirens and the movement of unusually heavy traffic (especially in the case of individuals living in or near Searcy) frequently served as such arousal stimuli. Generally speaking, however, these happenings were interpreted as a bad traffic accident and they were not directly related to the storm that had passed. Consequently, only about a tenth of all the respondents in the non-impact areas made any attempt to ascertain what the attention-drawing cues meant. And most of these were interested primarily in seeing or establishing how bad the supposed traffic accident had been.

Typical comments about the ambulance sirens and heavy road movement were as follows:

> We heard ambulances going backwards and forewards and we thought it was--we didn't think about it being a tornado--we thought it might have been a wreck somewhere, a car or something, and Jackie said, why don't we go out and see it, and so we went. (Case R-045, p. 2)

> We were eating supper when we heard the ambulance and things going by...and we thought there must have been an awful wreck. (Case R-068, p. 1)

> Then we began to see the ambulances...the ambulances came streaming by passed the house...you know you hear them...every once in a while--because they have accidents out here on the road and I thought at first it was just an automobile accident. (Case R-052, pp. 2, 7)

> The first thing we noticed was the ambulances. We heard them come by and, of course, we figured it was a wreck. (Case R-025, p. 3)

This interpretation of sirens and ambulance movement as indicative of a traffic accident is again an instance of cues being assimilated to normal experience. This was especially true of the residents of Searcy. A road juncture just outside of the town had become notorious for the number of traffic accidents that occurred around it. Many inhabitants of Searcy, consequently, had become accustomed to interpreting sirens and heavy road movements as a sign "there had been another traffic accident down at the Y."

Very few non-impact respondents learned of the tornado either through official (or semi-official) sources or through the mass media. In fact, as the interviews with special respondents indicate, even the officials themselves learned of the tornado primarily through informal rather than formal channels of communication. As for the mass media, it should be remembered that there was a power failure in most of White County immediately prior to the striking of the tornado. Consequently, except for people who might have happened to have been in cars with radios, it would have been impossible to have learned of the tornado through the mass media that night. This impotency of the mass media was further compounded by the fact that the local radio station was put out of commission and that only relatively distant transmissions could be heard (and those only with great difficulty because of the heavy static that was an aftermath of the storm). The failure of power also would have prevented the local newspaper from being able to operate its presses to issue an immediate extra edition.

Immediately after the storm, as might have been expected, the vast majority of respondents in both impact and non-impact areas considerably underestimated the extensiveness and/or severity of the tornado. (See Table 4-3.) Very few of the respondents overestimated the scope and nature of the

destruction. The same tendency towards underestimation also appeared when community-wide comparisons were made. Even individuals in the worst hit localities, failed to guess how large an area the tornado had swept and how punishing it had been. In fact, the majority of impact respondents thought the tornado was confined to their own town, village, or immediate rural area. A typical remark was:

> I thought right in here [reference to Judsonia] was all the storm there was. I knew we was right in the path of it and I thought that was all of it. (Case R-202, p. 1)

Table 4-2

WAYS IN WHICH NON-IMPACT RESPONDENTS LEARNED ABOUT THE TORNADO

Learned in the Following Ways	Percent of All Persons Not in Impact
Told by another known person	60
Told by acquaintance, stranger or overheard conversation	16
Direct perception of destruction or tornado effects	6
Told by public official or semi-official source (e.g., telephone operator)	3
News from mass media	2
Other sources (e.g., television)	1
Way in which respondent learned about the tornado not reported	12
Number of Interviews	139

Actually, immediately after impact, there was even sometimes a tendency to believe that the storm had struck a very small area such as the respondent's own home only. Several respondents commented along these lines:

> I still felt all the time that it was just my house. (Case R-354, p. 2)

> After the storm was over my first thought when I went out of the house was that it didn't hurt anybody's house but mine. (Case R-346, p. 16)

> Somehow I thought that our house was the only one hit. (Case R-148, p. 2)

Table 4-3

DEGREE OF ACCURATE ASSESSMENT OF EXTENSIVENESS AND/OR SEVERITY OF STORM

Degree of Accurate Assessment	Percent of All Persons	
	In Impact	Not in Impact
Underestimated extensiveness and/or severity	64	78
Overestimated extensiveness and/or severity	6	--
Uncertainty and confusion regarding extensiveness and/or severity	3	4
Relatively accurate estimation of extensiveness and/or severity	1	--
Accuracy of assessment not reported	27	17
Number of Interviews	139	158

The underestimation of the extensiveness and/or severity of the storm, of course, was primarily confined to the very immediate post-impact period. As the night passed, impact respondents learned that towns (or rural areas) other than their own had been hit. However, as the following table (Table 4-4) shows, there were some differences in the time when certain towns learned about what had happened ot other localities. For example, that Judsonia had been struck was known by midnight by at least 40 percent of the respondents in each of the other areas that had been hit. On the other hand, very few people in other impact areas were aware by midnight that Doniphan had been hit. As for Bald Knob, the proportion of people who knew sections of it had been hit ranged from nearly two-thirds of the respondents around or in Boldingville to about an eighth of the respondents in Doniphan. It would appear that how hard a town had been hit, was not directly related to the time when other stricken towns learned about it or when it learned about them.

The greater knowledge about other towns exhibited by respondents in Boldingville and Bald Knob is probably attributable to the fact that these towns were astride transportation routes into the heart of the stricken area. Boldingville, for example, is on the main highway on which much of the outside aid was brought into the impact areas and by which many of the victims of the tornado were brought out of the stricken towns. Bald Knob is on the main highway through which aid came into the stricken area from the north, especially from the cities of Batesville and Newport in counties adjoining White County. Conversely, the somewhat isolated location of Doniphan probably accounts for the fact that, generally speaking, almost no one in the other impact areas knew before midnight that it had been struck. A possible additional factor was the fact that the roads leading into Doniphan were very heavily blocked by debris, making it impossible for vehicles to move out of or into the village.

For the first few hours after impact at least, all movement from or into the town was on foot.

Table 4-4

LOCALITIES KNOWN BY OTHER IMPACT AREAS TO HAVE BEEN HIT BY MIDNIGHT*

Impact Areas Learned About by Midnight	Learned About by Percent of Respondents In				
	Judsonia	Rural Judsonia	Doniphan	Beldingville	Bald Knob
Judsonia	--	47	41	76	69
Bald Knob	23	41	12	65	--
Doniphan	1	--	--	18	--
Number of Interviews	86	17	17	17	16

* Only part of all the cross-tabulations run are presented here. The relatively low frequencies in other cross-comparisons, while in the same general direction as stated in the paragraphs above, preclude the drawing of significant conclusions from them.

Non-impact areas appeared to have learned which towns had been hit in somewhat the same order as towns in impact areas had learned. Thus, while a majority of respondents in the non-impact areas who first heard of a tornado learned that Judsonia had been hit, only very few reported they heard about Doniphan. Even by midnight, over 60 percent of all non-impact respondents had learned about Judsonia, but only eight percent had heard about Doniphan (see Table 4-5). One consequence of this was that whatever needed to be done in Doniphan had to be done by the residents themselves.

JUDSONIA



Table 4-5

STRICKEN LOCALITIES HEARD ABOUT BY RESPONDENTS IN NON-IMPACT AREAS

Areas Hit	Percent of All Persons Not in Impact
First Heard About	
Judsonia	56
Bald Knob	24
Doniphan	4
Other specific locations	14
Later Heard About (Before Midnight	
Judsonia	31
Bald Knob	25
Doniphan	4
Other specific locations	15
Number of Interviews	158

Initial and Later Responses and Reactions

Primarily for expositional purposes, this section is divided into three parts. In the first part, we will discuss the orientation of activities of our respondents. That is, we will consider what were the objects towards which the people in our sample acted in the twelve hours following the tornado. A description of the specific activities engaged in, will comprise the second part. The final part will consider the affective reactions of our respondents. Naturally, objects, acts, and affect, are part of an interrelated whole in the behavior of any one individual. Their separate treatment here, for expositional purposes, should not obscure this basic fact.

To make what follows understandable and to give it any significance, it is necessary here to make one point quite clear--at a first and superficial glance, the behavior of individuals in the post-impact period presents a picture that might fit the stereotyped notions of disaster reactions. Especially if the more dramatic and bizarre events are selected, the personal and social chaos supposedly characteristic of human activity in the face of a catastrophic event, appears to be present. At best the activities might be characterized as completely confused, largely disoriented, wildly uncoordinated, apparently quite uncontrolled. At worst, the behavior could be termed markedly "irrational," non-goal directed, unthinking and non-functional, with seemingly very many people in a state of "panic."

However, a somewhat different picture comes into focus, if a second and more searching look is taken. The behavior then can be seen to be much more well-controlled and goal-directed than might appear at first glance. For example, the individuals "hurrying past one another" and "climbing over debris" are actually searching for their relatives. Moreover, much of the activity, given the circumstances, is relatively well-organized. Thus, small groups here and there are clustering and digging into buildings where some people are trapped. Only to an outsider with his overall perspective of the situation, and operating with hindsight evaluation instead of on a basis of an immediate necessity to act, does the behavior appear markedly chaotic. To the involved individuals, acting in terms of their own immediate perceptions of the situation, their behavior appears (and is) adaptive to the situation. On the basis of the situation as it is perceived by the participants, relatively little personal or social disorganization--or little enough to cause a breakdown in goal-oriented behavior or collective action--would appear to exist.

However, this does not mean there is no confusion or that actions are well coordinated. There is confusion and activities are uncoordinated, although there may be considerable variation from group to group and from individual to individual. For example, two rescue groups may, in succession (and unknown to the other group), dig through the same debris looking for victims. But how can the second group know about this? They can hardly be expected to take the chance of leaving buried victims. Or, an individual instead of staying at his destroyed home waiting for his relatives, will set off to see them and they will start off to search for him, with the consequence that neither finds the other since they pass en route. Here again, how can either party ascertain what has happened to the other? Neither one can reasonably be expected not to attempt to find out what has happened. It is uncoordinated behavior of this kind, sensible enough from the immediate viewpoint of the participants, that creates the confusion that exists and makes for problems of disaster control.

This distinction between the perspective of participants and the viewpoint of observers (especially the disaster control agencies) is a very important one. It is quite one thing to plan on the basis that most everyone is acting quite wildly and irrationally. It is rather a different matter to assume that the disaster behavior that ensues is the rather reasonable resultant of the immediate situation individuals and groups see themselves faced with. If this distinction is ignored, it will be difficult to picture accurately what occurred in this particular disaster. More important, it will be difficult to plan for the confusion in disasters that results from actions that are individually controlled and reasonable, but that at a group level are uncoordinated.

Orientations of Activities

In general, orientations of activities of the impact population were similar during the first half-hour after impact (i.e., up to 6 P.M.) and during the subsequent six-hour period ending at midnight. Almost all of the respondents reported primarily storm-oriented behavior during both periods. The major

difference was in the amount of community-oriented action. In the initial half-hour period behavior was primarily directed towards self, kin, and property. Only about a quarter of the respondents took part in any general community activity. In contrast, over half of the impact respondents engaged in some type of community-oriented activities in the period between 6 P.M. and midnight (see Table 4-6).

After midnight, activities drastically quieted down. The tornado victims, in the main, either went to bed or sat around talking about the storm. Few individuals undertook any actions directed towards the community in general, non-household kin, or property. Active storm-oriented behavior, on the whole, was not resumed until morning.

Table 4-6

ORIENTATION OF MAJOR ACTIVITIES, BY TIME PERIODS

Object of Orientation	Percent of All Persons in Impact			Percent of All Persons Not in Impact		
	First Half Hour	From 6 P.M. to Midnight	From Midnight to Dawn	First Half Hour	From 6 P.M. to Midnight	From Midnight to Dawn
Person(s)						
Self and self-with-others	39	43	40	3	17	5
Household kin-present	16	12	4	1	2	1
Household kin-absent	11	6	—	4	5	—
Non-household kin	29	34	9	6	28	9
Intimate(s)	5	4	1	—	2	—
Community in general	27	55	14	8	47	15
Property						
Own property	23	15	4	7	4	—
Property of non-household kin	1	1	—	—	1	—
Property of intimate	1	—	—	1	—	—
Property in general	3	2	—	1	2	—
Non-storm oriented activities	1	1	44	77	48	76
Object of orientation unreported	4	4	18	2	1	15
Number of Interviews	139	139	139	158	158	158

The non-impact respondents, for the most part, knew nothing of the tornado in the first half-hour period. Consequently, their general behavior was completely non-storm oriented. In the period between 6 P.M. and midnight, after the non-impact respondents learned of the tornado, many of their actions were directed towards non-household kin and towards the community as a whole. Like the impact cases, after midnight the non-impact respondents suspended their storm-oriented activities and, in general, returned home and went to bed. A considerably smaller proportion of them resumed storm-oriented behavior the following morning.

Having given the overall picture we now turn to a more detailed description of the orientations of activities in each of the time periods. The limits of the time periods are, of course, only approximations. This is especially true of the first half-hour which had to be estimated on the basis of the guesswork of respondents and an evaluation by the analysts of how long certain activities could have taken. The dividing line of midnight, on the other hand, is considerably more accurate. Many respondents refer to specific times in this later period, with a number of them giving concrete evidence of the basis of their time referents.

The First Half-Hour Period (Up to 6 P.M.)

Self or self-with-others orientation was the most prevalent in the first half-hour following impact. About one-third of all impact respondents reported such major self-orientation of activity in the immediate post-impact period. Such activity involved the individual doing things for himself or with others rather than for them. Illustrative of this type of orientation of activity, were those individuals who gave themselves first aid, who stood around and talked with others about what had happened, who went and got shelter for themselves, etc. Remarks illustrating this kind of self-oriented activity are as follows:

> We all went and got in the car because it was raining in the house and we was getting awful wet. (Case R-346, p. 3)

> After it was all over, well, I heard someone hollering, you know, and I went to the door. It was a girl friend of mine over here. After she came in we sit here and talked... we was just a talking about it. (Case R-020, pp. 1, 2)

Nearly a third of the respondents in impact also were oriented towards non-household kin in this period. Usually this involved searching for or assisting relatives in the vicinity of the respondent's own home. As one respondent reported:

> The wife said, 'how did it hurt my father?' I said, I didn't know and I stepped out to look across and see. Well, the top part of his house was gone so I went over there. They weren't hurt, scared up a little bit. They come to us [and stayed the rest of the night]. (Case R-110, p. 2)

There was little orientation toward more distant relatives for at this time there was little realisation of how far the tornado had extended. Typical of the comments in this connection was the following:

> I didn't think about it coming into town. I just thought it was out there on that road. I didn't think about anybody, you know, except on the hill. (Case R-282, p.7)

Community orientation was reported by about a quarter of all the impact respondents. This rather low percentage seems to be traceable to by three facts:

1. Individuals who were very hard hit had to extricate themselves and the people with them from the debris.

2. Individuals, whether themselves hard hit or not, first wanted to be sure that all their kin, in the vicinity at least, were safe. As one respondent said:

> After we found they [I.e., relatives] were alright we began to help those that were hurt. (Case R-238, p. 2)

3. A considerable number of individuals, especially in more lightly hit areas, tended to think of the destruction of the tornado as confined to their immediate locality and did not realise it had hit elsewhere. As one respondent who suffered but minor house damage put it:

> Really, I thought maybe that was the worst part of it, that we were in the worst part of it. Right after the storm we took the radio out of the living room and put it in back in the corner of the bedroom and threw something over it to keep it from raining on it. That is what I thought of, trying to take care of what was there. Didn't realize everything was gone in town. I just thought probably, you know, storm usually just hit one place. Never realised it was that bad until we started up town. (Case R-294, pp. 8, 16)

This failure to realise the extensiveness of the destruction also probably accounts in part for the fact that about a quarter of the impact respondents reported property orientation in the first half-hour. In this connection it may be noted that such activity towards property, accompanying ignorance of the extent of the storm, was more prevalent in the rural than in the town areas. For example, just about half of all the impact respondents in the Judsonia rural areas reported property-orientation within the first half-hour, whereas only about a fifth of all the Judsonia town cases reported such activity.[1] It may be that individuals in the towns were more likely to be able to see, as they stepped out of their houses, that buildings were down all around

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[1] Only seven percent of the Doniphan cases reported property orientation but this may be due to the fact that few people in Doniphan owned their own homes.

them. Yet, it is also fairly clear that even in the built-up areas, the peculiar path of the tornado sometimes led to an underestimation of its extent. An individual may have had his house damaged and the houses within eyesight may have been damaged only very slightly, if at all. The fact of underestimation, consequently, would not completely account for the rural-urban differences in property orientation. A possibility is that the farmers had livestock which needed immediate care. As one of them noted:

> The first thing I had to do was to prop up the fences to keep the stock from getting out on the highway...we were so busy seeing about the fences, afraid that the stock would get out, that we didn't get to go down into Judsonia. (Case R-250, p. 2)

Over three-quarters of the non-impact respondents reported non-storm oriented activity during the first half-hour. This is what is to be expected in view of the time it took for people outside of the impact areas to learn about the tornado. If anything, it is surprising that as many non-impact respondents were storm-oriented in this time period, as reported they were. Storm-orientation of non-impact respondents during the first half hour is largely traceable to two factors:

1. Some non-impact respondents lived on the very periphery of the tornado hit areas. They could either see what had happened or people from the impact areas could get to them in practically no time at all.

2. Some non-impact respondents by chance drove into the struck areas. Either on their way from their homes or while going elsewhere, they happened to run into places the tornado had hit. One fortunate incident of this type involved a Red Cross bloodmobile truck loaded with blood and nurses, which was on the highway just north of Bald Knob when the town was hit. This truck arrived at Bald Knob within 15-20 minutes after impact and was immediately able to go into operation. This, of course, was pure chance and such incidents were quite rare.

The Six-Hour Period Up to Midnight (From 6 P.M. to 12 A.M.)

Almost all activity of the impact respondents up to midnight was storm-oriented. Only about one percent of them reported that at any time during the period were they engaged in non-storm oriented behavior. It is probably that this small percentage is accounted for by those few individuals in the impact areas who went to sleep a little while before midnight.

There was a strong orientation towards the community in general during this period. Many people, (in fact, over half the respondents) took some major action towards individuals other than their kin or intimates. The bulk of the activity which was so oriented, it would appear, centered around rescue work and the giving of emergency relief. Since rescue work and emergency relief are described in detail in later sections of this chapter, they will not be discussed here. However, it should be noted that most rescue work was oriented

towards non-kin individuals, and community-oriented emergency relief probably was the most common of all storm-oriented activities that night.

Just about as many individuals were self or self-with-others oriented in this time period as were so oriented in the first half-hour. Of course, even where the self was a prime object of orientation, this does not mean that respondents were not also oriented towards other objects. There is considerable evidence of such multi-orientation in the interviews. Thus, a respondent will have reported securing (or providing) emergency relief for himself and then turning around to give his attention to rescue work or some other community-oriented activity. Relatively few persons had only one major orientation throughout this entire six-hour period. Orientations towards self and kin took priority, for the most part, over those towards other objects but they did not exclude them.

Slightly over a third of all impact respondents reported being oriented primarily towards non-household kin. This is about the same proportion as reported such an orientation for the first half-hour. However, for the most part, it does not refer to the same objectives. The earlier orientation was with reference to searching for or assisting relatives in the vicinity of the respondent's own home. Usually, ascertaining of the whereabouts and conditions of nearby kin did not take too long a period of time. However, as knowledge about the extent of the tornado spread, impact respondents extended their searching activity further afield and began to look for more spatially distant kin. This is illustrated in the following case of a respondent in Kensett who defined the weather disturbance that hit that town as a sign of a tornado fairly close by. She stated:

> As soon as it was over, we got out to see his mother [living in the town]. She was alright. Then we went to Searcy to see [in sense of visit] my folks. Realized going over there because of the things that had been blown down between here and Searcy, that Doniphan must have been hit. We thought Doniphan had been struck so we rushed over there [to Searcy] and rushed back to Doniphan to see about my grandparents that lived up there. We couldn't get them. And we came back [home] and got lights and went back out there and we found them and got them out about 8:30 or 9. Didn't know about Judsonia and Bald Knob until after we had gotten out there. Somebody came and said that Judsonia had been blown away and Bald Knob had been hurt awfully bad. My husband had an uncle at Bald Knob so we tried to find out about him. We tried to get to Bald Knob. (Case R-120, pp. 1, 2, 6)

Very few respondents were oriented towards missing household kin during this time period. This is not surprising because (1) at impact the vast majority of households were intact,[1] and (2) the whereabouts and condition of missing household members was usually about the first thing a respondent attempted to ascertain. The first instance, of course, called for no orientation towards missing household members, and the second instance usually had a

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[1] See Table 2-36 in Chapter II.

quick and successful ending. One woman who was at the store when the storm hit, and whose children were at home, reported her actions in this connection as follows:

> I left there before the wind really quit blowing. I said, 'I've got to go see about my kids.' There was so much lumber, and house tops, and trees, and high lines wires, and things, that I couldn't get anywhere in the car. So I just jumped out and started running for the house to see about my kids. Of course everybody, everyone that seen me was hollering at me and asking if some of us was hurt and I just answered them the best I could and just kept running. I got up here at the corner and come to my house. The kids were all standing on the front porch and I seen they were alright. (Case E-173, pp. 1, 2, 6)

Because of such successful searching activity (and the fact that most households were intact at impact) only about six percent of the impact respondents were still looking a half-hour after impact for members of the household.

Very few persons were oriented towards property during this period. Only about 15 percent of all the impact respondents reported such an orientation. Moreover, this figure undoubtedly includes many who took relatively minor actions to protect their property from future exposure, e.g., by pulling the furniture away from windows so the rain would not get on it, putting clothes in a closet, etc. A very few individuals indicated that they had some fear of looting and that they stayed around their homes for this reason, but such people quite definitely were an extremely very small minority. Certainly there is little evidence that indicates that, at this time, property was of major concern to most respondents or that they took many actions with reference to it.

This was the only time period in which a majority of non-impact respondents were engaging in primarily storm-oriented activities. Even so, nearly half of the respondents in the areas that were not hit, undertook no major activities with reference to the storm or its consequences. Of course, as indicated earlier, some of these people had not learned about the tornado at this time. Other individuals, although they had acquired knowledge about what had happened, just did not feel themselves involved in any way. Still others, who were aware of the tornado, apparently felt they could do nothing themselves or that the situation was being taken care of by agencies and organizations that usually operate in such crises. Such complete non-involvement, however, was not typical of those who thought they might have relatives in areas that were hit by the storm. Typically then, such kin were objects of orientation of activities on the part of non-impact respondents.

Evidence for this lies in the fact that about one-fourth of the non-impact respondents reported being oriented towards non-household kin during this time period. In many instances, this involved more than just searching activity. Fairly often, relatives who were victims of the tornado were given temporary shelter in the respondent's own quarters.

As might be expected, relatively few non-impact respondents reported

self, household kin, or property orientation in this time period. That anyone in the non-impact areas had such orientations is largely due to the fact that some of the non-impact respondents lived adjacent to localities that were struck by the tornado. They consequently suffered some effects of the storm--usually very minor property damage. As one respondent reported:

> All the damage it done to me, I'd say it blowed the outhouse over and I just set it up. That's all. (Case R-125, p. 2)

Of particular interest is the fact that while only 52 percent of all the non-impact respondents reported storm-oriented activity, most of these reported community-oriented actions in this time period (frequently in combination with other actions, such as searching for kin). It might appear that, insofar as individuals in non-impact areas acted with reference to the storm, they acted towards the stricken areas in general. For several reasons, however, these data should be viewed with caution. The figures on frequency of community-oriented activity include, for example, all those individuals from the non-impact areas who went over that night to the areas that had been hit. Not all such activity was constructive. Some of it was merely sightseeing, all of it added greatly to the traffic problem. It is not that many of these people would not have helped if they had been specifically asked or directed, but lacking such directives, they oftentimes did little more than observe what was going on. For example, only five percent of the non-impact respondents engaged in rescue work, whereas an additional 26 percent observed it but did not actively participate.

However, it is still true, that a substantial proportion of non-impact respondents did help--especially with work they could do in their own areas. Thus, in Searcy alone, 26 percent of the respondents undertook some form of medical activity. Some of this was of a rather minor nature, and other was volunteered assistance which was not accepted, but this is, nevertheless, a rather sizeable block of people available for just one kind of activity.[1] And all of this activity was community--rather than kin--oriented.

The Six-Hour Period From Midnight to Dawn (From 12 A.M. to 6 A.M.)

After midnight storm-oriented activities tapered off to a considerable extent. Most of the things that needed immediate attention (e.g., the rescuing of trapped persons, the obtaining of temporary shelter for the night, etc.) had, by then, been attended to for the bulk of our respondents. This suspension of storm-oriented behavior, as might be expected, was even more marked for non-impact than impact individuals. The vast majority of those people from non-impact areas that had been engaging in some activity with reference to the storm, ceased their work and went home to bed. The same appears to have been true of most, although not all (e.g., the National Guard), formal organizations and agencies. They ceased or greatly curtailed operations after midnight.

Nearly half of the impact respondents reported non-storm oriented activity after midnight. In all but a few instances this means the individuals

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[1] See Chapter V for additional detail.

simply went to bed or tried to rest. Many, of course, got very little sleep.[1] And, as already indicated in the section on derivative threats, some individuals were awakened in the middle of the night by the possibility of a new tornado, with the consequence that a few of them went for a time to a storm cellar. As one respondent reported:

> About four o'clock--none of us had slept at all--this cloud came up. There was just a continuous lightning in the north so I suggested a storm cellar. And when I did everybody hit the floor at the same time and put on their coats. Got out to the storm cellar which was about seven miles out in the country. We stayed there until about five-thirty or six o'clock...then... came back home. (Case R-126, p. 8)

A substantial proportion of the respondents reported self or self-with-others orientation after midnight. This does not contradict what has just been said for almost all of this self-oriented activity represented preparations for settling down for the night, or simply sitting around and talking about what had occurred. As one respondent reported:

> We set around here and talked--didn't nobody go to bed--... so we just set around here until daylight. (Case R-202, p. 3)

After midnight relatively few impact respondents were non-household kin oriented. In large part this was because most missing family members had been located by that time. Of those respondents that did continue their search after midnight, some were successful in locating their objects of search. However, there were cases of individuals not being able to account for all of their family for several days. It should also be noted that no one in our sample reported an orientation (in this time period after midnight) toward missing household kin. This would suggest that almost everyone in the impact areas had located their own immediate family members, even though they might not be with them that night (e.g., where family members were hospitalized in different medical centers). However, there is some indirect evidence from special interviews with medical personnel, that there were at least a few cases where injured family members did not know the whereabouts or conditions of other family members for several days after the tornado.

Sex Differences in Orientations of Activities

As Table 4-7 indicates, there were some sex differences in orientations of activities. A few of these differences are substantial.

Women were much more oriented toward self or self-with-others in all the time periods. In contrast, men were considerably more community oriented and more oriented toward non-household kin than women and were also slightly more oriented toward household kin present than women.

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[1] See the later sections of this chapter that discusses physiological-psychosomatic reactions and their duration.

Table 4-7

ORIENTATION OF MAJOR ACTIVITIES BY TIME PERIODS
AND BY SEX OF RESPONDENT
(IMPACT CASES ONLY)

Object of Orientation	For First Half Hour		From 6 P.M. to Midnight		From Midnight to Dawn (6 A.M.)	
	Percent of All		Percent of All		Percent of All	
	Males	Females	Males	Females	Males	Females
Person(s)						
Self and self with others	24	55	25	63	29	52
Household kin present	21	10	14	9	6	1
Household kin absent	6	4	10	3	—	—
Non-household kin	31	28	39	28	7	10
Intimate(s)	6	4	3	4	--	1
Community in general	28	25	75	34	25	3
Property						
Own property	19	27	18	12	6	3
Property of non-household kin	—	3	1	—	—	—
Property of intimates	1	—	—	—	—	—
Property in general	3	3	4	--	--	—
Non-storm oriented activity	1	—	—	3	43	45
Object of orientation unreported	4	4	—	7	17	19
Number of Interviews	72	67	72	67	72	67

The greater community orientation of men is probably accountable for by two factors:

1. Participation in the direct rescue work was almost exclusively confined to males.

2. There appeared to be a much greater tendency for men than women to wander around the stricken areas with the consequence that men had much greater opportunities than women to engage in activity that was community oriented.

The women--sometimes because they had to take care of the children, sometimes because they were more psychologically shaken by the experience than the men--tended to remain around their homes or the houses they were taken to after impact. This would also explain why women were much more self-oriented

than men. They just stood around and talked about what had happened. This is further supported by the fact that a rather low percentage of women reported an orientation toward household kin present.

All the data does fit in with the general overall impression one gets from the interviews that women, with notable exceptions, were rather passive in the post-impact activities. However, there are a number of indications that this passivity may be merely a function of the social situation. Where no men were present to do what needed to be done, the women went ahead and did it. They did not wait around for others to come and assist them. Unfortunately our data are not clear-cut enough to be able to state this more than as an impression and as a possible hypothesis for further and more intensive study.[1]

That only about a quarter of the men were community oriented in the first half-hour, whereas three-quarters of them were so oriented in the time period between 6 P.M. and midnight, is a fact of interest. Part of the difference is explained by the fact that a number of the male respondents simply did not realize the extent of the tornado until after the first half-hour. But probably a much more important factor is that the men did not turn to general community activities until they had assured themselves that their families were safe and sound. As will be indicated in much greater detail in the sections on rescue and searching activity, most people did not concern themselves too much with others until they had established the conditions of their own immediate families and, in many cases, of even more distant kin. Family orientation took considerable priority over any other orientation. This may, of course, be a function of the kind of population involved--in a rural and village population, family ties tend to be stronger. For purposes of general prediction of disaster behavior, it would seem important to study other kinds of communities. Unfortunately, the nature of the samples used in our other studies, makes it difficult to use data from them for this purpose.

Types of Major Activities

The three major types of activities undertaken in the first half-hour were giving of emergency relief, searching for missing relatives and friends, and standing around and observing and conversing with others. About a third of all the respondents reported activities in each of these classes. The six-hour period after the first half-hour and ending at midnight saw some shifts in the proportion of individuals taking various actions. There was an increase in the relative proportion of individuals who reported participation in giving emergency relief, receiving of emergency relief and engaging in

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[1] Our study of Brighton suggests the same impression--i.e., if alone or only with other females and children, women will be much more active in a crisis situation than when they are with men. See Volume III, Appendix B-2.

rescue work. About the same proportions of respondents as in the first half-hour, reported searching for missing relatives and friends, and standing around and observing and conversing with others. There was a slight drop in activity relating to the assessment of property.

After midnight there was a drastic decrease in all types of activities. As was indicated earlier, most people went to sleep or tried to rest. Only the receiving of emergency relief was reported by as much as a quarter of all the impact respondents. No other activity was undertaken by more than 15 percent of all the individuals that had been in impact.

Table 4-8

TYPES OF MAJOR STORM-ORIENTED ACTIVITIES BY TIME PERIODS
(IMPACT CASES ONLY)

Type of Activity	Percent of All Persons in Impact		
	For First Half Hour	From 6 P.M. to Midnight	From Midnight to Dawn (6 A.M.)
Respondent Performed			
Emergency relief	35	46	14
Searching for missing	32	28	4
Observing and standing around, conversing with others	31	35	15
Assessment of property	17	10	1
Rescue	11	22	6
Medical (including first aid)	1	4	—
Other storm oriented activity not classified elsewhere	4	12	4
Respondent was Recipient of			
Emergency relief	16	34	24
Rescue	2	2	—
Medical (including first aid)	1	6	6
No activity or type unreported	4	4	18
Number of Interviews	139	139	139

Since the non-impact respondents, for the most part, knew nothing of the tornado in the first half-hour period, they engaged in no major types of storm-oriented activity at that time. Even in the period between 6 P.M. and midnight, about half of the non-impact respondents continued their normal, non-storm oriented activities. The three major types of storm-oriented

activities taken were standing around and observing and conversing with others, searching for missing relatives and friends, and giving of emergency relief. Observing (and conversing) was reported by nearly half of the non-impact respondents. The other two common kinds of activity were reported by about a quarter of the individuals that were not in impact. After midnight, the non-impact respondents also ceased their storm-oriented activities and went home to bed. The only activity reported for the period after midnight by as much as a tenth of all the respondents was standing around and observing and conversing with others.

Table 4-9

TYPES OF MAJOR STORM ORIENTED ACTIVITIES BY TIME PERIODS
(NON-IMPACT CASES)

Type of Activity	Percent of All Persons Not in Impact		
	For First Half Hour	From 6 P.M. to Midnight	From Midnight to Dawn (6 A.M.)
Respondent Performed			
Emergency relief	5	25	8
Searching for missing	7	26	5
Observing and standing around, conversing with others	12	48	11
Assessment of property	7	6	--
Rescue	--	4	1
Medical (including first aid)	--	6	3
Other storm oriented activity not elsewhere classified	--	6	1
Non-Storm Oriented Activity	76	48	76
No activity or type unreported	2	1	15
Number of Interviews	158	158	158

In the following paragraphs, these activities are discussed more fully.

The First-Half-Hour Period (Up to 6 P.M.)

Participation in giving of emergency relief was reported by about a third of all the impact respondents. In this initial time period, emergency relief consisted primarily of giving temporary shelter to others, protecting them from exposure, and verbally reassuring them that the danger was over or that the situation was not as bad as it seemed. Individuals with homes less

damaged than those of their relatives or neighbors took them in, and tried to make them as comfortable as possible. However, actions towards other than kin typically followed only after the condition and whereabouts of at least household members was established. As one respondent said:

> Naturally, I went out to see about my boy first. He was down at the store. Checked on him and he was all right.... Naturally you want to see about your own first. Then we just begun to help neighbors that didn't have no home, you know. We begin to gather in neighbors and hung up dry clothes. Those folks that were homeless were all wet and cold. We just begin to gather them up and get them to the fire and put dry clothes on. (Case E-304, pp. 2, 4, 5)

About a third of the respondents began searching for missing relatives or friends sometime during the first half-hour. Usually this involved searching for kin in the neighborhood of one's own home. Since there was relatively little realization of how far the tornado had extended there was little hunting around at this time for more distantly located relatives.

What might be considered a surprisingly high proportion of respondents reported that at some time (and not necessarily for the entire period between impact and 6 P.M.) they merely stood around conversing and observing what was going on. Nearly a third of all the impact respondents reported engaging in such observing activity. There is some impressionistic evidence that many of these were persons who lived in the more lightly hit sections of the impact areas. For such persons, it might be expected, given the less demanding situation, that they would engage in less goal-oriented activity than people in harder hit sections.

There were some relatively large sex differences in the type of activities undertaken during this time period. As shown in Table 4-10 below, three major kinds of activities were performed more frequently by men than women. These were (1) giving emergency relief, (2) rescue, and (3) searching activity. The only major activity in which women engaged more often than men was assessing property. Generally speaking, the picture is one of women taking part only in somewhat more spatially circumscribed, less physically exacting, and more passive kinds of activities, than did the men. This is further supported by the fact that proportionately more women than men reported that they just stood around and observed what was going on.

Several reasons might be adduced for the apparently greater inactivity of the women. For one, as will be shown in the section on affective reactions, more women than men suffered severe affective disturbances in the immediate post-impact period. It is probable that this aspect alone--that of being relatively incapacitated by affect--accounts for the standing around and observing behavior of a number of the women. Then too some of the labor necessitated by the situation, generally speaking, called for great physical exertion. This was especially true of the rescue work, and to a somewhat lesser degree of searching activity (e.g., having to climb through or go over debris, etc.) This fact would, in part, explain why no woman in our sample took direct part

Table 4-10

TYPES OF MAJOR ACTIVITIES, BY SEX, FOR FIRST HALF-HOUR
(IMPACT CASES ONLY)

Type of Activity	Percent of All Respondents	Sex: Percent of All Males	Sex: Percent of All Females
Respondent Performed			
Emergency relief	35	42	27
Searching for missing	32	43	20
Observing and standing around, conversing with others	31	24	39
Assessment of own property	17	10	24
Rescue	11	21	—
Medical (including first aid)	1	1	1
Other storm oriented activity not elsewhere classified	4	3	6
Respondent was Recipient of			
Emergency relief	16	6	27
Rescue	2	—	5
Medical (including first aid)	1	3	—
Non-storm oriented activity	1	1	—
Type of activity unreported	4	4	5
Number of Interviews	139	72	67

in rescue work (in any time period), and why a considerably lesser proportion of women than men engaged in searching activity. Furthermore, whenever there were children present, it was the woman who had to take care of them. As several women remarked:

> See, I had my own children to take care of, and I wouldn't of left them for nothing. I didn't go out any place because someone had to see after them. (Case R-322, p. 31)

> I would have helped if I could have got someone to watch the kids. (Case R-098, p. 29)

The greater proportion of women than men who reported property assessment as a major activity in the first half-hour is probably related to the same factors discussed above. If a woman was confined to one place, she was

more likely to look around the house and note what had been damaged, than was a man who had started out to see about relatives. In this connection, it may be noted that individuals who engaged in one activity, were also, in many cases, concerned about other matters. A woman who sent her husband out to ascertain the whereabouts and conditions of her parents, may have stayed at home with the children and, while the husband was absent, may have assessed the damage done to the house. The activity engaged in by an individual does not necessarily bear a direct relation to what may be the matter of greatest concern at any particular time. Given the time lag in learning about the tornado it is not surprising that few non-impact respondents reported storm-oriented activities within the first half-hour. The greatest proportion that did report storm-oriented activities stated that they primarily stood around and talked with others about the situation. This might be expected since, as word circulated about the tornado the individuals that heard about it talked it over, with those who had relatives in the stricken areas and frequently decided that they should go and see what had happened.

The Six-Hour Period Up to Midnight (From 6 P.M. to 12 A.M.)

Emergency relief was clearly the predominant type of activity in this time period. Nearly half of all impact respondents reported giving it, while over a third of them stated that they received it. Frequently, of course, the same persons, both received and gave emergency relief. For example, an individual may have gotten his children into dry clothing, and then have moved all his family into the home of his parents. The locating of temporary shelter, incidentally, appears to have been largely completed in this time period. By midnight, most respondents knew where they were going to stay that night.

About a fourth of all the impact respondents reported that, during this time period, they were looking for missing persons. For the most part, persons searched for at this time were kin located in more distant places. The earlier search activity (i.e., during the first half hour) usually enabled searchers to locate relatives that lived near them (within the same town or rural area). Of course, not all such early search activity was successful, and some of it undoubtedly was continued into this time period. This was especially true if both parties involved in the searching activity had somewhat simultaneously started out to hunt for one another, and had missed one another on the way. One respondent reported her own searching activity of this kind as follows:

> We got in the car then. We went on out to town to see about his father. Well, we got nearly to his place and we seen it was gone, you know. There was nothing left. We couldn't find him, but we asked one of the neighbors that we seen there, and they said that they had gone for our house to see about us. So we came on back down still looking for them. We came on back down where we lived and they wasn't there. We drove around town and someone said, why, I think your daddy is up at S., up at the other street waiting to catch you. My husband went up to S. and found out that they had been there and they had gone back

> to Miss J....out on the highway to spend the night out there. So he came back and said, 'We is going to see about papa.' So we went out to Miss J. and finally found them and they were all right. (Case R-137, pp. 3, 7)

During this time period, as in the first half-hour, a sizeable proportion of respondents reported that they merely stood around and observed or talked about what was going on. A third of all the impact respondents reported such activity. It should not be assumed that these people were merely passive observers at a time when active rescue and relief efforts were needed. In the first place, those who engaged in observation and conversation did not, in general, spend all the time from 6 P.M. to midnight in a passive role. For example, someone who engaged in rescue work for the first three hours, then took two hours off to rest and talk with friends, and who then participated in emergency relief activity, would have had coded as one of his major activities, standing around and conversing. Moreover, these spectator reactions frequently occurred in situations where the respondent's attempts at more active participation were frustrated or proved unnecessary. For example, there are accounts in the interviews of individuals who upon seeing that they were not needed in rescue work, returned to their homes and talked with their family or neighbors about the work that was going on. Finally, it seems fairly clear, that much of this observing and conversing activity occurred in the later part of the night towards midnight rather than in the several hours right after impact. It was, of course, in the earlier part of the evening that most things needed to be done.

It was also in this time period of between 6 P.M. and midnight that most of the rescue work went on. About one out of every four respondent stated they took part in rescue work during this period. Again, however, it appears probable this activity, insofar as it was engaged in by individuals in small informal groupings, reached its peak in the early hours after impact and was not evenly distributed through the whole period. Some evidence for this lies in the fact that about half of all the impact respondents who took part in rescue activity, worked at it for an hour or less. Further evidence lies in the reports of special respondents that much of the individual and informal rescue work was, by and large, completed rather early in the night. However, as will be indicated in greater detail in the section on rescue activity, some individual activity of this nature and most of the formal organizational work of this type continued far into the night and into the dawn.

Activities towards property were reported only by about a tenth of all the impact respondents. There is considerable internal evidence in the interviews, that such major assessment of property as did occur in this time period, was only undertaken after more immediate needs, such as emergency relief, first aid, etc. were taken care of or absent kin were found. As one respondent said:

> After I found out they /the family/ were safe I just broke down and cried. I really had a good cry there. But I could see better after that...I had a thought about my household and stuff like that. Before that nothing crossed my mind but the family. I never thought about nothing--household goods or anything like that. (Case R-314, pp. 10, 12)

In some cases, respondents only assessed their property immediately prior to leaving their houses to take up temporary quarters elsewhere for the night. The data rather clearly indicate that very few persons bothered or even thought to make an inventory of their losses during this time. Naturally, most people were able to see merely by a glance the approximate damage their houses had sustained, but few knew or cared about the details that night.

Very few people in the impact areas either gave or received medical treatment during this time period. Given the fact that over 40 percent of the impact respondents were injured, this might be considered a low figure. However, since the reference here is only to major activities during this time period, a higher frequency would not necessarily be expected. Most injuries were of a rather minor nature, not requiring extensive attention or treatment.[1]

Although just over half of the non-impact respondents reported engaging in storm-oriented activity in this time period, the overwhelming bulk of the activity took but three forms--observing and conversing about the event, searching for relatives, and giving emergency relief.

The activity most reported was the standing around, observing and talking about the storm. Nearly half of all the respondents outside of the impact areas stated this was one of their major activities in the time period between 6 P.M. and midnight. In some cases, this involved visiting the tornado-stricken areas. In other instances, it involved observing what was going on in the relief centers at Searcy, especially at the Armory and the Legion Hut. And in still other cases, it involved merely exchanging reports about what had happened,with neighbors or relatives who came by.

About a quarter of the non-impact respondents reported that in this time period they either searched for missing relatives or intimates, or gave emergency relief. The interviews indicate that many of those who looked for missing kin and who gave emergency relief were the same persons. Frequently, someone who searched for and found a relative or friend, gave him emergency relief (including temporary shelter in his own quarters). As one respondent reported:

> We had heard that the main part of Judsonia was blown away...my brother-in-law was so nervous that he couldn't drive and we came back up here to my house and got my husband to drive us over to Judsonia...took two hours to find them [mother- and father-in-law]...found them in a truck. Their clothes were all torn and they were soaking wet...we did get them in the car and got them back to Searcy [to her own house]. (Case R-034, p. 1)

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[1] However, see the discussion on first-aid treatment for further explanation of the low proportion of such activity reported.

The Six Hour Period from Midnight to Dawn (From 12 A.M. to 6 A.M.)

As indicated in the section on orientation of activities, there was a very sharp drop in storm-oriented activities after midnight. No activity was reported engaged in by more than about a quarter of all the impact respondents. The highest reported proportion was for those receiving emergency relief. In this time period, emergency relief usually had reference to moving into temporary quarters, or, if that had already been done, obtaining some food before going to bed. Since the storm had struck about supper time, quite a number of the respondents had not eaten for over twelve hours and had often engaged in rather strenuous activity. While some people were quite hungry by the middle of the night, very few were really interested in a full meal, and coffee seems to have been the main item consumed.

Some respondents reported they stayed up and talked for most of the rest of the night. However, it would appear that not too many people did stay up all night. One respondent who did, reported:

> We came on down here then to the house. Of course, we just sat around here and talked and talked. We just all sat around here all night, the rest of the night, and talked until daylight. Didn't nobody go to bed. (Case R-202, p. 3)

Very few impact respondents reported that after midnight they engaged in searching for missing, in rescue work, in assessing property, or in other similar kinds of storm-oriented activity. Of course, most missing persons had been located by this time. At least, if the respondent had not seen the objects of his search, he had heard from some source he accepted as reliable, where the objects of search were located and in what condition they were. And rescue work after midnight, as previously indicated, was taken over for the most part by formal organizations. As for property, few individuals had any interest in doing anything about it at this time of the night.

As might be expected, activities of non-impact respondents after midnight were even more curtailed than were those of impact respondents. The overwhelming majority of persons simply went to bed. The few who remained up, sat around and talked about the storm. This occurred more often in those instances where the non-impact respondent had taken a victim of the tornado into his house for the night. In this connection, it may be noted that even those few non-impact respondents who were still storm-oriented after midnight, were no longer operating in the impact area itself. They were back in their own homes.

Affective Reactions

In general, affective reactions immediately after impact were similar to those during impact. There may possibly have been a slight increase in the frequency of the "shocked" reactions in the immediate post-impact period, but the evidence is no more than suggestive. In the main, individuals maintained self-control during impact, immediately after impact, and later on in the impact night. Few cases of uncontrolled behavior appeared.

As is indicated in Table 4-11 below, most individuals who experienced the tornado maintained considerable self-control in the immediate post-impact period. While just a few respondents reported that they were calm and unexcited, even fewer stated that they became so highly agitated that they were unable to control their behavior. About 14 percent of the respondents did report behavior indicating that they were in a state of shock or semi-shock. However, this category probably includes a variety of reactions rather than just one homogeneous entity. Even if all the individuals who were coded as in a state of shock are combined with those who were uncontrollably agitated, however, only about a fifth of all impact respondents could be considered as having been incapacitated by their affective state. Moreover, while some of the shock cases could be considered as having been generally incapacitated by their affective state, this would not hold true for all of them. The internal evidence of the interviews indicates that very few respondents were incapable of caring for themselves or needed to be taken care of by others. The chief incapacitating aspect of this affective state of shock or semi-shock was probably an inability to assist others in any but the simplest activities.

Of course, there is the problem of the reliability of the reports of respondents on their own affective states. Reports that might involve admission of behavior deviating from the socially approved are always somewhat suspect. In a rough way, the observations of respondents on the behavior of others after impact tend to support the respondents' own reports. Lacking any clear-cut evidence one way or the other, it might be assumed that probably there was almost as little uncontrolled overt behavior as was reported, and that people probably were covertly somewhat more disturbed than they reported.

Table 4-11

MAIN AFFECTIVE STATE IMMEDIATELY AFTER IMPACT (FIRST HALF HOUR), BY SEX OF RESPONDENT

Affective State	Percent of All Impact Respondents	Percent of All Males	Percent of All Females
Highly agitated state, behavior uncontrolled	6	1	10
Agitated state, but behavior controlled	45	45	46
Shocked state (i.e., "stunned," "dazed," "shocked")	14	5	22
Calm and unexcited	8	11	4
Other affective states not specified above	1	—	3
Main affective state unreported	18	38	14
Number of Interviews	139	72	67

As might have been expected, a further analysis of affective reactions immediately following impact, by sex of respondents, shows that women accounted

for the bulk of those who reported either loss of self-control or a state of shock. Just about a third of the women reported such immediate post-impact affective reactions. In contrast, only five percent of the men admitted to being so highly agitated that they lost overt control of themselves, or to being in a state of shock of some sort. However, the fact that just about as many women as men (i.e., almost half of the respondents of both sexes) reported agitation but self-control, should not be overlooked. It would seem to suggest that possibly more than just the cultural allowance for a greater show of affect on the part of women is involved. Various other factors that might be relevant are discussed in the later analytical chapters.

As shown in Table 4-12, the affective states of respondents later in the post-impact night were quite similar to the affective states immediately after impact. In both periods most individuals felt agitated but maintained self-control. The major difference is that not a single instance of highly agitated and uncontrolled behavior is reported for the later time period. What little loss of self-control had occurred immediately after the tornado, dissipated as the night went on. An analysis made of initial affective states in relation to later affective states showed that all the individuals who had reported highly agitated and uncontrolled behavior immediately after impact, had later that night reported either agitated but controlled behavior, or (much less frequently) a shocked state. Otherwise, generally speaking, the initial affective state was maintained by respondents, at least up to midnight.

Table 4-12

MAIN AFFECTIVE STATE OF RESPONDENTS FROM 6 P.M. TO MIDNIGHT

Affective State	Percent of All Persons in Impact
Highly agitated state, behavior uncontrolled	—
Agitated state, but behavior controlled	44
Shocked state (i.e., stunned, dazed, shocked, etc.)	15
Calm and unexcited	4
Other affective states not specified above	4
Main affective state unreported	33
Number of Interviews	139

There was little difference in the proportion of individuals in impact and non-impact areas who reported agitated but controlled behavior. This, however, may conceal a qualitative difference. Those in impact areas who were excited, disturbed, etc., were reacting to the events they had directly experienced and perceived. Those from non-impact areas who reported similar affective states were reacting to the event indirectly through identification with the victims or perception of the storm consequences, and, undoubtedly, with much less intensity of affect.

Despite the relatively intense affect, most impact respondents maintained overt self-control. From one point of view, at least, affective state did not matter. Individuals in impact areas were still able to engage in rescue work, give relief, etc. They were not, in the main, greatly incapacitated by their emotional disturbances. At least, there is no evidence that, just because individuals were excited, they were not able to do most of the things that needed to be done at that time.

In general, the affective state of the impact respondents could be attributed to what they had directly experienced. However, much of the agitation also was related to the anxiety generated by the uncertainty or lack of information regarding the whereabouts or condition of absent kin. Almost half of the respondents in the impact areas (and, also, over a third of those in the non-impact areas) reported this as one of their main objects of affect. Typical comments in this connection went as follows:

> Scared to death about my husband because I knew he was out in it. (Case R-202, p. 2)

> A million pictures came to my mind. I could see them piled up under all this stuff, and I could get it in my mind that they were scattered across the country, one of them here and one of them yonder. I just didn't see any chance for them. I just couldn't figure in my mind that there was a possible chance that they could be safe. (Case R-314, p. 10)

> It was a terrible feeling to think maybe you would go down there and find your folks all dead. (Case R-238, p. 1)

It is of interest to note the very low proportion (between five and 10 percent) of individuals who reported injuries of any nature as their object of affect. This is somewhat noteworthy, because, as elsewhere indicated, over 40 percent of the impact respondents sustained injuries of some sort. It is clear, from this and from all the other data, that such matters did not anywhere rank as high an object of concern or a focus of activity as did missing kin.

Specific Emergency Activities

In the previous section we have described the overall activities that occurred during the night following the tornado. In this section we will go into more specific details about four of the most important of the specific emergency activities undertaken that night. These are search, rescue, first-aid, and the obtaining of immediate temporary shelter. As was indicated earlier, varying proportions of respondents engaged in these activities. It is probable that relatively few respondents took part in all four activities.

Search

As was indicated earlier, in Chapter II, for over a fifth of the impact cases, one or more member was separated from the other members of the household at the time the storm struck. Some of these individuals were quickly reunited with their families after the tornado. This happened in those instances, for example, where one household member was outside in a car while the rest of the family was inside the house. Reunion and appraisal of one another's welfare in those instances took but seconds. The following is an illustration of a case where the period of separation was very short:

> I was at the...factory where I work. I started home...By the time I got home, the wind was blowin--the debris was flying by so fast and severe that I couldn't get in the house. So I had to set in the car, watch the house tear down. My wife and children were in there...gave me a queer feeling, that you know there is something going on that you would like to prevent if you could, but you know that you can't...I set and prayed...Of course I didn't wait until the wind completely ceased before I went to the house. As soon as this debris and limbs from the trees and things wasn't fallin...I left the car and went in the house...I ran to the house as fast as I could go. I didn't know whether I could get the door open or not--the house had fallen over and craned over, but I run there and turned the latch...by the time I jerked the door open, they /his wife and children/ were up off the floor to meet me...When I opened the door and my family was all there unhurt, I was one more happy fellow. (Case R-193, pp. 1, 8, 9)

In most instances, however, reunion with and appraisal of condition of immediate family members was not so rapid as in the case just cited. Individuals had to seek out one another in various places or had to make inquiries of different people about the whereabouts and conditions of the sought kin. In most cases, such searching activities for immediate family members apparently took precedence over any other activity. Respondents, in general, did not stop to help other people or to participate in rescue activity until they had ascertained the whereabouts and conditions of their own household members. This appeared to be true also of individuals holding official positions. One town official reported:

> I was about seven blocks from the business section and people was ahollering and ascreaming and hollering for me to come there and I said: 'I haven't got time, I'm on my way now to see about my mother.' Man was standing out there. Looked like they had a hole knocked in their head and asked for me to help them and I couldn't...I told them I had to go on and see about my mother. And I didn't make a stop till I got out to my mother's house. (S-32, pp. 1, 2)

However, such officials did plunge into rescue work as soon as they ascertained about the safety of their immediate family members. Typical reports in this connection were as follows:

> As soon as it [the tornado] was over, why, of course the first thing I thought of was to go home and see about my family. And I went out the door. Didn't realize it blowed the whole town away until I got out...I took off down the street, down Main Street. Had to climb over parts of buildings and everything to get over. And jump wires--scared of electricity. [Another organizational official] came out of the White Kitchen [a cafe] and he started hollering where I was going and I told him I was going to the house here--see about my family...and I got in and seen they was alright ...was tickled to death so I...turned around and went back... went on down the back street, one block from the main street and...started digging, helping people get other people out. [Worked at rescue and transporting the dead almost continuously from that point on for about the next five hours.] (Case S-31, pp. 2, 3, 6)

However, searching activity was not confined to missing household members. Individuals worried about and hunted for relatives other than those living in their households. Furthermore, as the word spread that the tornado had hit a wider area than the immediate locality, respondents began to conduct searching activity in more distant areas. Individuals in Bald Knob, for example, went to look for relatives in Judsonia; people in rural areas undertook to hunt for kin in various villages and towns.

It is not surprising to find that at least 43 percent of the impact population engaged in search activity sometime during the night of the tornado. Many more people, of course, were worried about their relatives, but when one family member was sent off searching, the rest usually stayed where they were. As it is, nearly half of the impact respondents engaged in search activity.

Individuals from the non-impact areas also engaged in searching activity. Nearly 30 percent of all respondents in non-impact areas reported such activity. However, it should be noted that, since, on the whole, they learned of the tornado later than did individuals in impact areas, they tended to start their searching activity somewhat later. It is possible that a considerable amount of the searching activity by impact respondents was over by the time most such activity was initiated by non-impact individuals.

In this connection it may be noted that there was considerable variation in the nature of the search activity. In some instances it involved just going a few blocks in a town and within ten or fifteen minutes discovering the person one was looking for. In other cases, however, it involved an all-night search, covering perhaps a distance of thirty or forty miles, while hunting through several towns and villages.

The following is a case illustrating an extensive (but not extreme) searching activity. It is presented in great detail to show also how search activity for kin frequently predominated over all other activities and how persistent searchers could be in the face of obstacles. It also illustrates some of the problems frequently encountered by individuals engaged in searching.

All the time that this /the storm/ was happening, I kept thinking about my mother and my sister who live about six blocks down the street from me...So the minute the storm was over I just flew out the door and was yelling for my husband. We got in the car and started down there. We didn't get very far because the trees, and lines, and poles, and everything, were all across the highway. There was everything on the highway. We didn't know either that the current was off and he said we couldn't go any further, that we would be electrocuted. And so I jumped out of the car and just flew. I fell down three or four times before I got down there. I was just so scared that I guess it didn't make much difference whether there were wires down or not...I saw everything down around the school house and just lowered, you know. There was nothing there. Finally I could see my mother and sister coming this way, and they were calling to me, and I was calling to them as loud as I could...we couldn't really believe that we were seeing the other until we actually felt of each other...

Then we went across to my aunt and uncle's and they were pinned in their house. They weren't hurt but they couldn't get their doors open and couldn't get out /the door was finally opened/. They wanted to know where they could go, and what they were going to do. So I said, 'Come on up to my house.' So I brought them up here. And I brought my uncle and my mother and then I got them settled as best as I could. I nailed up the windows over there, and mopped up some of the water that was in this room, and went up into the attic and got a coal-oil lamp...

Then I went to look for my aunt, who had gone down to see about my uncle's mother and family. So my sister and I went down--we drove down--by that time we could drive down as far as the school house. So we got out there and started weaving and winding our way through all the different entanglements that were all over the street. In fact, you couldn't tell where the streets were, and we couldn't tell whose house you were in front of, or where we were going. But somehow we ran into my uncle and he helped us get over to this house where my uncle's folks live. His mother and two sisters and one brother had all been taken to the hospital. My aunt had gone along, so we came back...

We came back here and we told my uncle about it, and he said that he wanted me to go to the hospital on account of his wife. That's my aunt. So I said all right. I have two sisters who live in Little Rock, and I wanted to call them and tell them that we were all right...

So I started to Searcy, and I had two or three other people with me--my sister and this one girl. I went by her house and she said, she called to me, and I stopped, and I said, 'Are you alright?' And she said 'Yes, but Glenn isn't'--ah, Glenn is her boy friend...she had gotten Glenn in a car and had sent him to

the hospital, but she didn't know which hospital or how bad he was hurt, and by this time--it must have been around nine thirty--she wanted me to see if I could find him. I asked her to go with me and she said, well she would, and she got on her coat and got out to the porch, and she decided she couldn't do it, so I went on.

We looked for my uncle C, and my aunt and their family. We first went to the Hawkins clinic. They received people there so fast that they had no record or list of people. And when you asked about a certain person at the desk, they just told you to look and see if you could find them. Most of the people were from Judsonia. A lot of them we recognized, and there were an awful lot we didn't. They were just all--you just sort of had to weave your way through. And of course the lights were out there. Some places they had temporary lighting, and some places just candles. And we looked all over there and we didn't find any of them.

Then we went on over to the other hospital and we looked there. Others helped us look there. We didn't find these two people we were looking for, but we found a number of other people that we didn't know about from Judsonia. We went to three different places. In Harding College they had set up three temporary hospitals in the dormitories, and we still didn't find either of these people. So we went to the Legion Hut there. They were supposed to have some sort of a record. That is where I found my aunt and later on we checked at the morgue and found my uncle's mother. Then we left this H's brother checking for him. He was finally found at the first hospital that we went to--in a corner. He was in such a condition that we didn't recognize him, and he wasn't recognized or identified until sometime in the morning.

Then after we came home, which was about twelve o'clock, we found that our other two sisters from Little Rock had gotten up here, and they were more frantic than we were...by that time I think I had about twelve people here. So we finally fixed places for us to sleep, and so we went to bed. (Case R-126, pp. 3, 5, 6, 8)

Not only was there variation in the duration and extent of search activity, but there was also variation in the number of individuals searched for. In some cases the respondents searched for only one person. In most instances, however, it would appear that those who searched, looked for more than one person (as in the case quoted above). In fact, the usual pattern seems to have been the hunting for several different households of kin. In such instances the number of actual individuals looked for may have ranged up to ten or twenty.

As might be expected, respondents searched primarily for close family members. This is shown in Table 4-13. Very few of the respondents hunted for their spouses and relatively few for their own children, since, in most cases, respondents were with their immediate families during impact. The main objects of search were parents and siblings (most of them not members of the respondent's

own household). There was also considerable searching for in-laws, much of this, it would appear, in company with or at the urging of the respondent's spouse. Very few non-kin individuals were objects of active search during this period. The evidence indicates that friends and acquaintances were actively inquired about only in the days following the tornado, rather than that night.

Table 4-13

RELATIONSHIP TO RESPONDENT OF PERSONS WHO WERE OBJECTS OF SEARCHING ACTIVITY

Relationships	Percent of All Persons	
	In Impact	Not In Impact
Spouse	6	3
Offspring	13	7
Mother	12	10
Father	8	7
Sibling	14	8
Grandparent	2	—
Grandchild	2	1
Uncle, aunt, nephew, niece, cousin	7	7
In-laws and other relatives	22	12
Unspecified kin	5	5
Intimates	6	2
Entire household family	4	2
No one searched for or relationship unreported	57	71
Number of Interviews	139	158

As might be expected, most searchers went directly to the place where they thought the object of search would be. Very frequently (see Table 4-14) they were successful in finding the object of search when they did so. This was true both of impact and non-impact respondents. However, a substantial number of times, such direct movement to where the object of search was thought to be, proved fruitless. Searchers coming from non-impact areas were more often unsuccessful in such direct searching activities.[1] The high proportion of unfruitful searching activities on the part of non-impact respondents is probably due to the fact that people from non-impact areas reached their destinations later, and in the interim the objects of search had gone elsewhere. A typical remark in this connection was as follows:

> We drove round until about eleven o'clock before we could find any of his folks at home, where they live near Searcy. Course they came to see about us, and we couldn't find anyone home until about eleven o'clock. (Case R-138, p. 8)

[1] The apparent contradiction here, between direct movement being successful for 93 percent of the cases and unsuccessful for 48 percent, stems from the fact that frequently more than one person was searched for.

Table 4-14

RESULT AND TYPES OF SEARCH ACTIVITY

Result and Types of Search	Percent of All Persons Who Searched	
	Impact Cases	Non-Impact Cases
Relatively fruitful results obtained		
Direct movement to where object of search thought to be	80	93
Direct movement to where object of search might be, e.g., hospital	5	6
Inquiry of kin or intimates	12	10
" " chance congregations of individuals	10	30
" " official or semi-official organizational sources	3	--
Relatively fruitless results obtained		
Direct movement to where object of search thought to be	25	48
Direct movement to where object of search might be, e.g., hospital	8	17
Inquiry of kin or intimates	--	4
" " chance congregations of individuals	3	4
" " official or semi-official organizational sources	--	--
Number of Interviews	60	46

Almost no one made inquiry of formal organizational sources, official or semi-official. This is understandable in view of the fact that it was some time before any central disaster headquarters were set up. These were later established in the ruins of the Methodist church in Judsonia and in the Armory in Searcy. However, even if such headquarters had been established, they would not have been much use in locating people without a well-organized system of registration. The experiences of the hospitals seem to bear this out. Primarily interested in giving very necessary treatment to the victims brought in, there was initially little attempt to find out who such people were and from what areas they had come. Consequently, the inquiries of searchers at the medical centers could not be answered.[1] One of the hospital administrators reported that:

[1] In this connection it may be noted that inquiries at medical centers were attempted only when other possible sources of information were exhausted. The impression that one gets from the interviews is that searchers generally inquired at the homes of relatives and friends before they even thought of going to the medical centers (unless they had fairly definite information that the object of search had been seriously injured).

> This was one of the most pathetic things--people coming in and inquiring if so-and-so was here. Of course, during all that first few hours, it was impossible--you had no way in the world, you didn't have time to go around and ask someone their name and age and where they were from and all that. All you wanted to do was to give them first aid...I still wonder how it could be done--how you could get the information more quickly as to who was here--because not being able to tell people right off hand, you know, when they would inquire and you knew the panic they were in--anxiety--and have to say I'm sorry, we're just unable to tell you who is here at the present time...I know I felt guilty that night--I felt as though I was falling down on my job not being able to find that out...they tagged them when they gave them the shots, but even then, they were working so fast they didn't take time to ask their names. (Case S-64, pp. 18-19)

Of those individuals who did engage in search, many were impeded in their activity--especially by debris and heavy traffic (see Table 4-15). Fully half of all respondents who hunted for someone found that the debris made movement difficult. Typical comments in this connection were as follows:

> You couldn't get there fast enough. There were wires and everything across the road. Took us about two hours to get to town...we walked about a mile to get in. (Case R-238, p. 1)

> We were trying to get over to see about them [parents], but we just couldn't do it. We was afraid to try to walk across...were afraid we couldn't keep them off the wires... we couldn't get through with the car at all. (Case R-138, p. 11)

> Couldn't get out, on account of the trees and things that all blowed across the road--we had to turn and to back--like to have never got up there. That was about, oh, hour, I guess, we was trying our luck getting out from down there about a mile out of town. (Case R-098, p. 16)

> Couldn't go anyplace, the road was filled up with trees, couldn't get out. (Case R-326, p. 12)

> We came in, couldn't get inside the camp, of course, because of the trees and things across the road: we got as close as we could. (Case R-314, p. 1)

Heavy traffic also impeded searching activity, although considerably more for non-impact rather than impact respondents. Given the actual situation, this was to be expected. Debris being primarily on the highways in the impact areas, traffic movement was necessarily confined to the roads leading into the stricken zone. Typical remarks about the traffic by respondents went as follows:

Once in a while we get in the line of traffic, you couldn't see the end of it, all coming this way...seemed like it take me four or five hours to get up here. (Case R-314, p. 6)

We got to this junction over here about Judsonia, and they were stopping...the traffic was so heavy, you couldn't get any further. (Case R-118, p. 5)

When we got out on the main highway...the traffic was just stacked up there for miles, that you couldn't—you couldn't get anywhere. We just had to set and wait and wait and wait, you know. (Case R-138, p. 15)

Table 4-15

CONDITIONS IMPEDING SEARCHING ACTIVITY

Condition	Percent of All Persons Who Searched	
	Impact Cases	Non-Impact Cases
Debris on the roads	50	52
Heavy traffic	13	54
Adventitious demands made upon respondent (e.g., asked to transport injured to hospital)	12	4
Lack of information	6	15
Road blocks of control authorities	3	9
Fear of derivative threat (e.g., fallen wires)	3	—
Inability to obtain vehicle	1	—
Number of Interviews	60	46

By midnight the vast majority of searchers had found all the individuals they had been seeking for. As shown in Table 4-16, only 16 percent of the impact and four percent of the non-impact respondents were still hunting for someone six hours after the storm. In many of these instances, of course, the searcher had found some of the people he was looking for but had not been able to establish the whereabouts and conditions of all those searched for. The difference between impact and non-impact respondents in searching activity after midnight is probably attributable to the fact that persons sent to hospital and medical centers were more difficult to locate than others. And, as would be expected, more of the impact respondents had seriously injured relatives.

Table 4-16

ELAPSED TIME BETWEEN KNOWLEDGE OF IMPACT* AND ASSESSMENT OF CONDITION OF ALL OBJECTS OF SEARCH

Elapsed Time	Percent of All Persons Who Searched	
	Impact Cases	Non-Impact Cases
Up to (but less than) 15 minutes	16	4
" " " " " one hour	30	13
" " " " " six hours	38	80
" " " " " 12 hours	3	--
Within 24 hours or sometime Saturday	9	--
Twenty-four hours or more	3	4
Number of Interviews	56	55

*Knowledge of impact in the instance of non-impact respondents is not equivalent to actual time of impact. However, for purposes of this table, the two times can be thought of as approximately the same.

Rescue

Rescue activity was initially undertaken almost solely by individuals in the stricken areas. That is, impact respondents themselve quickly acted to remove persons from positions in which they were helpless, by digging through debris, removing obstructions, or otherwise extricating entrapped individuals. In a few instances this activity also included aiding persons who were immobilized because of injuries or were unconscious, regardless of whether such persons were trapped in debris or not. In some rural areas, initial rescue activity also took the form of combing open fields, looking for victims who might have been blown there by the wind.

As might be expected, individuals first sought to rescue immediate family members. As soon as the wind died down, respondents were rapidly able to establish whether any person they had been with had been rendered helpless--either by being pinned under debris or by injuries. If they perceived any persons in such conditions, they immediately acted to help them. Typically, in most such instances, rescue activity was of a rather minor sort--e.g., lifting a plank or other debris off a person. This again is what is to be expected, for if several persons were in the same physical situation during impact, the chances are rather high they would have about the same probability of being trapped. If the walls collapsed or the ceiling came in, all the people present would most likely have been trapped. If only one person present got trapped, it was because this person got an arm or a leg caught under some debris, rather than being completely buried under the wreckage.

Some of the search activity led to rescue work. This was especially true in those instances where a respondent, immediately after impact, went to hunt for some relatives living nearby. On arriving at the residence of such relatives, he would find them buried and consequently would try to start digging them out. However, this only occurred where there was a short time interval between the end of impact and the time the searcher arrived. If the time was over a half hour, other individuals (e.g., neighbors) would, in most cases, have already started rescue activity.

Apart from immediate family- (or kin-) oriented behavior (which, in most cases, was rescue work of a relatively minor sort), there was also rescue activity of a more complex nature, usually involving individuals apart from (or in addition to) relatives. This occurred when individuals got trapped under considerable debris. In such instances, family members were all trapped together, or those who were not, could not remove the debris by themselves. One woman who was blown out of her house while it collapsed on the rest of her family, related that:

> /As soon as the wind stopped blowing/ the first thing I did, I went to the place where they were pinned under the house. That is the first thing I did after the storm. I knew they wasn't able to get out by themselves. I tried to move the walls off my husband so he could get out, but I couldn't budge them by myself. I ran for help and found these two men up the hill, and they come and helped me, helped me move some of the walls. I don't know who they were, but they helped me...When we got him /husband/ out from under the house, his head was hurt. It was bleeding. He had the baby under him, trying to hold the weight up off of her. (Case R-083, pp. 1, 2, 4, 6)

Something of the nature of this more complex type of rescue work, as well as many other aspects of rescuing activity, is illustrated in the following remarks by a respondent who lived in one of the lesser-hit houses in Judsonia. The typical pattern of first establishing the whereabouts and condition of kin before doing anything else, is apparent:

> In a few minutes the thing was all over. I thought about my mother-in-law that was alone, so I jumped in the car and went out to see about her. When I got over there, she was all upset and crying and I brought her back here to be with my wife. Then all the neighbors began to come in here because it was about the only house that had a roof left on it. So I got them all in, told them to be as comfortable as they could, and I went to town to see what I could do down there to help.
>
> I had the most miserable feeling I believe I ever had when I went down there. It was pouring rain, just begin to get dark. You could hear the most weird moaning and screaming and carrying on you ever heard in your life. One would hear somebody hollering for help, you'd try to locate them, get them out.

This friend of mine that was killed--we dug down to him and he had a big two-by-four across his back and the brick was piled three feet high on top of it. When we got down to this big timber, one fellow hollered to get a saw. Course, everybody just stood there, so I got up and ran down the street trying to find someone I knew to borrow a saw from. I met a man down there that I thought would have one, and I asked him and he said Yes, there was one over here on the back of his garage. He would never find it, he was so nervous. He could never find it. So I went out and found a saw. When I got back, the man that run the service station come with a big hydraulic jack and raised the timber with the jack.

But it was strange the reaction some people had when I got back with the saw. The people standing around--so thick around that pile of brick there that I couldn't get up to where I could help--so I handed the saw over to one feller, and he said, 'I can't use a hand saw, give it to somebody else.' So I handed it to another man, and he went to work with it.

I worked there for an hour, I guess, trying to dig him out. Dug down to him--and the store was tin and tin shingles in the ceiling--and a piece of the ceiling came out over this boy's back, and I felt of him, and he was still warm. I could hear his wife and little boy talking, and they would holler, 'Help!' And his wife would try to console the little boy, and we told her and told the little boy that we were working as fast as we could getting to them, get them through. And when we got down to where we could get them out, the boy and his little dog was dead, his wife and his son was still living.

We just put them along with the rest them injured and sent to the hospital to get treatment. It was quite a problem to get the bodies out of town cause all the streets and things were piled deep with all kind of wreckage. Ambulances just had to bounce over them. And we carried them out. For a long time we couldn't get ambulances and things to haul them out in. Come to the dead, why, we just laid them out in the back of a truck side by side. Lay out in the rain. It was terrible.

Seems like everyone was kinda nervous rather more or less. There were some that were just more or less spectators. They were there to see what they could, and they didn't think about helping. And others tried to help all they could, and they were so nervous that they were more in the way than they were good. And there were a few that had presence of mind enough to go ahead do the very best job that was possible. Course it was hard to do in a situation that way because there wasn't any light or any--oh, just a couple of flashlights.

> A lot of my friends were trapped in them crumbled buildings, so I helped all I could there till one o'clock that night. Worked recovering bodies. Did what I could till one o'clock. I was wet and just exhausted. (Case R-129, pp. 2, 5, 6, 10, 12)

Both the typically simple family-oriented and the complex other-oriented rescue activity described and illustrated above were undertaken almost exclusively by local residents, with almost no assistance from individuals in non-impact areas. The non-impact population, of course, only learned of the tornado later that night; they had some distance to cover to get to the stricken areas; and they had to come over debris littered on--and, in some cases, actually blocking--roads. The stricken populace itself had little choice except to undertake the immediate rescue work. With the realization that the buried persons would die if not rapidly extricated, the impact population quickly began rescue activity.

Furthermore, psychologically shaken as the impact population was immediately after the tornado, it was, for the most part, quite capable of engaging in rescue activity. Particular individuals, who were searching for family members or were seriously injured, did not engage in rescue work, but the various populations in different impact areas did respond as a whole, quite well. Relatively few individuals permitted emotional disturbance alone to incapacitate them from doing rescue work.

There was, it is true, some confusion in this early rescue work. It was seldom organized, and, in consequence, individuals got in each other's way. People gathered closely around places where work was going on, hampering the rescue efforts. It was, at this time, probably not so much a question of such people merely looking on (in the sense of "sightseeing"), but the fact that they did not know what to do, in what way they could help. Various respondents reported:

> Couldn't think of anything that we could be any help at. (Case R-226, p. 21)

> As for myself, I didn't know anywhere to go in particular where anybody hadn't been or wasn't then. (Case R-097, p. 17)

> I knowed I couldn't be no benefit to nobody over there. Couldn't do anything. Cause I would if I could. (Case R-122, p. 23)

Probably more important than the confusion due to lack of direction in the early rescue work, was the related aspect of lack of system. Where rescue work was begun and continued, was primarily dependent on fortuitous circumstances. Much of it appeared to be localized at places where screaming was heard. Rescuers tended to congregate at such points and ignore others. Not only were certain town areas not as well covered as others, but the rural areas and highways were generally ignored in the first few hours after the tornado.

Only as the night wore on, did the rescue work become more systematic and more organized. In this connection, one of the special respondents, a state official but a local resident, reported that:

> I just took some fellows that I knew and directed them where to go. We just took it street by street. Each party of five--six men would take a street, and the next party would take another street. (S-27, pp. 10-11)

A regular respondent, for his part, said:

> Well, about early in the morning there, we got in groups of five, six, or eight. Fellows that knew each other. We begin to make a house-to-house search--in other words, just systematic search on down the blocks, so far where they told us everybody got out all right, and then we went to another block and did the same thing...All that night up until early in the morning we searched this wreckage--the main two blocks downtown, on up past the park community house to my house, and then the three houses across from my house, and then we went back on the next block towards the south end of town, and we searched those places. (Case R-159, pp. 9, 10)

It would appear that even the later, more systematic, and organized rescue activity was primarily conducted by local (i.e, impact area) individuals. Persons coming from non-impact areas seemed merely to join already-working rescue groups, rather than forming units of their own. However, only five percent of all non-impact respondents directly participated in rescue work. This clearly points up the fact that rescue activity was locally handled, without much outside help.

Organizational rescue activity did not start until quite late that night. The bulk of the National Guard, for example, did not arrive until four or five hours after impact. The same was true of the State Police. Given the distance they had to travel, the debris-laden roads, the heavy traffic, and the other emergency problems (besides rescue) with which organizations had to cope, their late arrival and initiation of rescue work is quite understandable. Such of the organizations as did engage in rescue activity appeared to have gone about it rather systematically, although no overall direction of rescue work was ever established, and there are indications that this sometimes led to a duplication of effort.

The one thing that may be attributable to organizational efforts is that the later rescue work covered a much wider physical area than did the earlier activity. Regular respondents in isolated rural areas, for example, reported that soldiers came inquiring about them late in the middle of the night. Townspeople also stated that military personnel or police came after midnight to their doors, asking if assistance was needed and if they knew of anyone that might need help or was missing. The highways were also searched. Such widespread rescue activity appears to have been primarily a function of organizational activity, although some informal groupings (as indicated in the last quotations cited) also operated on a systematic, and

at least community-wide) scale.

From all the available evidence, it would appear that, quantitatively at least, there were enough rescuers. In none of the data is there any evidence of a lack of rescuers as such. What does appear (more in the early rather than later efforts) is the lack of order, system, and distribution. As it turned out, there were relatively few people who needed to be rescued. Thus, only about five percent of the impact respondents were the recipients of rescue work. This percentage may be a slight underestimate, but there is no reason to suppose that a much greater proportion needed help. Possibly a few individuals, who, for various reasons (e.g., living in an isolated area), had to extricate themselves by their own efforts, could have been helped considerably by others, but it does not appear there were many such individuals. Those people who were rendered helpless by the tornado, in general, received assistance. It was primarily in the relative slowness, because of confusion, lack of system, and absence of organization, that rescue activity was not as good as it might have been.

As might be expected, of the 27 percent of all impact respondents who took either direct or indirect part in rescue work, the overwhelming majority were men (Table 4-17). In fact, just about half of the men in the areas that were hit, engaged in rescue work.[1] Only three percent of the women did so, and they were all indirect participants--i.e., their rescue activity was of an auxiliary sort, involving such matters as holding a light, giving advice, holding back a crowd, lifting a plank or two, etc. None of the women who fell in our sample undertook direct rescue activity involving digging through debris, lifting up wreckage, tunneling under a collapsed structure, or removing bodies found after such work. Apart from those engaged in rescue, about as many women as men observed rescue work going on, but the majority of women merely heard about the rescue activity.

Table 4-17

SUMMARY OF RESPONDENT'S ROLE IN RESCUE ACTIVITY

Nature of Role	Percent of All Persons in Impact	Percent of All Males	Percent of All Females
Direct participant as rescuer	20	39	--
Indirect participant as rescuer	7	10	3
Observed rescue activity	19	18	20
Heard about rescue activity	42	24	61
Recipient of rescue activity	5	1	9
Role in rescue activity unreported	7	7	7
Number of Interviews	139	72	67

[1]There were some rather large community-wide differences in the proportion of men who took part in rescue work. Thus, 62 percent of the men in Judsonia, but only 32 percent of the men in the rural areas surrounding Judsonia, engaged in rescue activity. The differences seem attributable to the fact that there was a much greater necessity of rescue work in some localities compared with others.

Individuals in the impact areas who took an active part in rescue activity worked primarily with strangers and/or acquaintances, rather than kin or intimates (see Table 4-18). This was especially true of all but the very immediate post-impact rescue work--i.e., apart from situations where family members, right after the tornado, set to work rescuing trapped household members. Apart from such situations, individuals worked with anyone who was around (practically no one worked at rescue activity alone). As one respondent, talking about his early rescue activity, said, "I didn't even know who the man was that was with me. Never saw him before." (Case R-159, p. 29) However, it is possible that the figures given in Table 4-18 below are not altogether accurate as between the proportion of rescuers who worked with particular known others and with strangers. Many of the strangers probably were known persons, but the respondent failed to specify this. It is clear, however, that few individuals worked with either kin or intimates, a fact that is in agreement with what else is known of rescue activity.

Table 4-18

SOCIAL RELATIONSHIP OF MEMBERS OF RESCUE GROUP RESPONDENT WORKED WITH

Nature of Social Relationship	Percent of All Rescuers
Respondent worked alone	3
Worked with spouse	3
Worked with household members	3
Worked with non-household kin and intimates	8
Worked with particular known others	34
Worked with strangers (or relationship unspecified but definitely not household member)	50
Number of Interviews	38

As shown in Table 4-19 below, the greatest proportion of rescuers tried to rescue particular known persons or strangers. Few people rescued kin or intimates. This is related to the obvious fact that there simply were not many occasions for individuals having to rescue persons related to them. As has already been indicated, the chances were high that, if a house collapsed, all the people in it would have been trapped. Consequently, family members were usually either all trapped, or all escaped. There were exceptions to this, of course, but they appeared to be relatively few.

Table 4-19

SOCIAL RELATIONSHIP OF PERSONS RESPONDENT TRIED TO RESCUE

Nature of Social Relationship	Percent of All Rescuers
Spouse	6
Household members	6
Non-household kin and intimates	12
Particular known others	42
Strangers (or relationship unspecified but definitely not household member)	34
Number of Interviews	38

Rescue workers, of course, found uninjured as well as dead and injured individuals.[1] It is impossible to estimate how many victims were found by different rescuers, but some workers had considerable contact with victims. One individual, a special respondent, who engaged in very extensive rescue work, gave the following account of his activity:

> When I got down there...why, we got Mr. C. out, and they carried him out and laid him out in the street until somebody could get here to take him to a hospital. And then I asked the B. boy where K. was, and he told me he was around in back of the building, said, 'I guess he's dead.' And so a fellow by the name of S. was with me, and he and I both started hollering for K., and K. answered us, and we got him out. And then Mr. E....I looked and saw him. He was fumbling around there rather clumsy--he wasn't too excited. And I said, 'E., where's your wife?' and he said, 'She's right here, come and help me get her out.' Well, I went and helped him, and we got her out, she was already dead. So then I went to the store...and there four of them in there. And we worked an hour--I guess an hour-and-a-half--getting them out. And Y. talked to me all the time. Fact of the business, she told me when her husband passed away. She said, 'C. is just now died.' It took us, I imagine, about an hour-and-a-half to get down to them through all this brick. And we had to cut several things, and we had to be pretty careful about it because afraid we might crush them, you know. So we got to them...

[1] Extremely few individuals engaged in rescue work, found dead or injured members of their own families.

> Got the boy out, and he was all right. She was in pretty bad shape from shock. The little girl was dead, and C. was dead...by that time an ambulance had gotten in, and we loaded them up in this ambulance. And a fellow came to me and said, 'K., Mrs. S. is laying over on the other side of the levee, she's all out in this rain and she's dead, but we should go get her. I'm not able to lift anything, but I know where she is.' So we got four fellows and went and got her and brought her back uptown. Then I came on back down the street, and when I did, a fellow hollered for me. And they had found a boy in a pickup truck that was sitting on the side—the brick building had caved in, and the bricks had tumbled down on his car, and we had to cut him out. We finally got him out, and I thought he was still alive. They took him away. And then we got four other people out—or I helped get them out. Three of the E.'s were their name, and I think the other little girl's name was C. And they were all dead...I went to look for several other people and come to find out somebody else had been there ahead of us. (Case S-042, p. 4)

It would appear that nearly half of the rescue workers had direct physical contact with the dead. There were some community differences. Thus, no one at Doniphan either saw or handled dead bodies. This is attributable to the fact that no one was killed in that town. In contrast, over half of the respondents in Judsonia either saw or handled the dead. The bulk of the people who were killed were from Judsonia.

As might be expected, the sight of the dead and injured was to some individuals traumatic or highly disturbing. As shown in Table 4-20 below, about a quarter of all the impact respondents reported some disturbing or traumatic aspect of handling the dead and injured. Only about half as many non-impact respondents reported such reactions, but this is understandable in view of the lesser contact with victims of the tornado.

Typical remarks about reactions to dead and injured went as follows:

> How horrible it was. Turn 'em over, their teeth had fallen out, half their face gone, and their hair was so muddy it was just mush...You know about how you'd feel, people that you knew a lot...you have sort of a hot feelin' or you feel flushed or something. You know, that kind of feeling. (Case R-066, pp. 16-17)

> You could see all of him but just his head, sticking out, and he was just cut all over and bleeding and blood all over his arms and legs...it was awful...I just felt sick and weak, and I felt awful faint. (Case R-173, p. 24)

> Got the boy out, and he was all right. She was in pretty bad shape from shock. The little girl was dead, and C. was dead...by that time an ambulance had gotten in, and we loaded them up in this ambulance. And a fellow came to me and said, 'K., Mrs. S. is laying over on the other side of the levee, she's all out in this rain and she's dead, but we should go get her. I'm not able to lift anything, but I know where she is.' So we got four fellows and went and got her and brought her back uptown. Then I came on back down the street, and when I did, a fellow hollered for me. And they had found a boy in a pickup truck that was sitting on the side--the brick building had caved in, and the bricks had tumbled down on his car, and we had to cut him out. We finally got him out. and I thought he was still alive. They took him away. And then we got four other people out--or I helped get them out. Three of the E.'s were their name, and I think the other little girl's name was C. And they were all dead...I went to look for several other people and come to find out somebody else had been there ahead of us. (Case S-042, p. 4)

It would appear that nearly half of the rescue workers had direct physical contact with the dead. There were some community differences. Thus, no one at Doniphan either saw or handled dead bodies. This is attributable to the fact that no one was killed in that town. In contrast, over half of the respondents in Judsonia either saw or handled the dead. The bulk of the people who were killed were from Judsonia.

As might be expected, the sight of the dead and injured was to some individuals traumatic or highly disturbing. As shown in Table 4-20 below, about a quarter of all the impact respondents reported some disturbing or traumatic aspect of handling the dead and injured. Only about half as many non-impact respondents reported such reactions, but this is understandable in view of the lesser contact with victims of the tornado.

Typical remarks about reactions to dead and injured went as follows:

> How horrible it was. Turn 'em over, their teeth had fallen out, half their face gone, and their hair was so muddy it was just mush...You know about how you'd feel, people that you knew a lot...you have sort of a hot feelin' or you feel flushed or something. You know, that kind of feeling. (Case R-066, pp. 16-17)

> You could see all of him but just his head, sticking out, and he was just cut all over and bleeding and blood all over his arms and legs...it was awful...I just felt sick and weak, and I felt awful faint. (Case R-173, p. 24)

Her husband was standing over him. His head lying open and he was just bleeding awful bad. It made me just all upset looking at him there like that. He was awful hurt. (Case R-163, p. 24)

I got there and looked at my father. And I got down there, and he looked up at me, and he--oh, he just looked awful. He was bloody and muddy and I don't know, I looked down at him, and I just had to look away for a second and looked back. He just looked awful. (Case R-175, p. 9)

Her hair was all mud. You couldn't tell if she was a woman or what she was. I didn't even know her. She was just so muddy and nasty, you know. She didn't much look like her. Clothes all atorn off of her. I don't want to experience something like that again. (Case R-255, p. 6)

I found one woman that was killed. On the street. I didn't know who she was. Something /had/ hit her in the face. I've seen plenty of dead soldiers but not any dead woman. I didn't like that. (Case R-190, p. 7)

It made me sick because the first body I looked at was--I knew him and his--the father's face and head was so blue that it made me kinda sick. (Case R-337, p. 20)

Table 4-20

TRAUMATIC AND DISTURBING ASPECTS IN RELATION TO DEAD AND INJURED

Nature of Traumatic or Disturbing Aspect	Percent of All Persons in	
	Impact	Non-Impact
Physical condition of the dead and injured	13	7
Expressive behavior of the injured	6	--
Large number of dead and/or injured	5	2
Social characteristics of victims--e.g., children, women, old people, etc.	4	3
Unconscious injured	2	1
Grief or emotional disturbance of victim's family	2	--
Facial expression of the injured	1	--
Sight of dead or injured, but no particular aspect singled out	1	1
Did not have any traumatic or disturbing experience with dead or injured, or nature of experience unreported	76	87
Number of Interviews	139	158

Not all dead and injured were perceived in relation to rescue work. Some of the reactions to the victims were evoked by seeing them in the medical centers or the funeral homes. However, it would appear that most of the traumatic and disturbing aspects about the dead and injured were perceived in the course of rescue work.

There were few complaints about the way rescue activities were handled. Only about 10 percent of the respondents voiced any unfavorable remarks about the way the rescue work was carried on. There was, instead, a moderate amount of praise. About a fourth of the respondents had favorable comments about the rescue work.

The most frequently voiced specific complaint (although actually very few respondents mentioned it) was that onlookers got in the way. As several individuals remarked:

> That night, after the storm, the people crowded the place so bad. They was bothering the people that was getting the dead out. They were getting in the way. (Case R-110, p. 13)

> People didn't realize how they were hampering the workers over there by going in to see just how much damage was done. (Case R-342, p. 4)

> Sightseers were trying to get through them [i.e., the rescue workers] to take pictures and see things--was just in the way when they were trying to work. (Case R-246, p. 26)

Praise for rescue activity took the following form:

> I thought that night the number of amateurs and things, that they had getting those people out to the hospitals and things...I thought that was a good job. They had lots of workers bringing those people in. (Case R-118, p. 20)

> I thought the people were excellent in their behavior... immediately following...started the attempts to turn the wreckage and find the bodies of the people...trying to save those that were still living. (Case R-150, p. 11)

> All the business men in Searcy was out with something or other to haul the men in...willing to do anything, carry wounded in the rain, mud, didn't matter how bloody. (Case R-238, pp. 5, 7)

Table 4-21

EXPLICIT PRAISE AND COMPLAINT ABOUT RESCUE ACTIVITY

	Percent of All Persons in	
	Impact	Non-Impact
Praise		
Quantity and quality of outside assistance	9	2
Rapidity of initiation of rescue activity and swiftness of recovery of victims	7	5
Persistence and tirelessness of rescue workers	7	10
Despite necessary confusion, good job was done	4	5
Complaint		
Onlookers, sightseers got in the way	4	6
Lack of equipment, proper tools, etc.	2	3
Slowness of initiation of work	1	1
Lack of overall direction in work	1	2
Other complaints not classified elsewhere	2	1
Number of Interviews	139	158

An interesting problem that a very active rescue worker noted should be mentioned here. This individual reported:

> We would take one injured person out in the road, and all we could do is hope that someone would come through and pick them up, and then we would go back and get another. As for first-aid, why, you can kinda put the situation like this. You have one alying here. You'd say, well, that one needs first-aid, but here's some more down here trapped by some wreckage. Which is the most important? Give this one first-aid or go get the others from the wreckage? So we did make up our mind that the best thing to do was to get all those out from under the wreckage that we could and then get doctors. Later on worry about these others. (Case R-167, p. 4-5)

This problem was not explicitly mentioned by other respondents, and in view of the large number of people available for rescue in most locations, it was probably a rare occurrence. However, in a disaster in which a high proportion of the local population was killed or injured, the problem would, undoubtedly, be an acute one.

First-Aid

First-aid was almost exclusively given in hospital or medical centers. Only 13 percent of the impact respondents gave or received first-aid, while in the stricken areas themselves. This 13 percent, furthermore, includes four percent of the respondents who reported treated themselves. While the proportion of individuals who were involved in first-aid was probably low, it is possible that our data underestimate such activity. It may be that people who received treatment in hospitals or medical centers later that night, failed to report the emergency first-aid they obtained in the impact area itself. Certainly, when it is considered that nearly half of all impact respondents were injured, more emergency first-aid activity by non-medical personnel would be expected than is reported.

The little first-aid activity that was reported took the expected forms. Cleaning and bandaging of wounds was the most common form of first-aid. The nature of this activity is illustrated in the remarks of the respondent who reported:

> We went over to the neighbor's house. We got merthiolate from her medicine cabinet and poured the wound full of merthiolate. We didn't know how long it'd be before she could get taken to a hospital or to see a doctor or whether there'd be so many that was hurt worse that she'd have to wait, and maybe there'd be an infection. So we immediately poured merthiolate on it. (Case R-160, p. 23)

Only a very few individuals reported such activities as the giving of sedatives or stimulants, rubbing or massag victims, etc. Of course, few individuals had any medical supplies that they could use, even if they knew how to administer first-aid. Lack of household medical supplies and ignorance of first-aid techniques probably account for the fact that little first-aid was administered or received in the impact areas.

The details of first-aid activities in hospitals and medical centers and the reactions of respondents to them (as well as to other medical activities) are given in the next chapter.

Obtaining Immediate Temporary Shelter

The sudden widespread destruction left many people in the impact area homeless and looking for shelter. This necessity for temporary cover was further compounded on the night of the tornado by the fact that it got rather cold and rained intermittently. In a few localities (especially around Bold..ngville and in some of the more isolated rural areas) people sat around camp fires all night long. One respondent from such an area said:

> Part of us, after it quit rainin' and we could get outside and make us a fire, why, part of us stayed out, you know, by the fire...we didn't sleep...we all had to stay up...for the rest of the night. (Case R-206, p. 10, 11)

However, the vast majority of respondents obtained temporary quarters somewhere that night. As is shown in Table 4-22, about two-thirds of all the respondents in the impact area took shelter in places other than their pre-tornado residence.[1]

Table 4-22

LOCATION OF INITIAL TEMPORARY SHELTER, BY HOUSE DAMAGE

Location	All Impact Respondents	Percent of Respondents With		
		Destroyed House	Heavily Damaged House	Only Light Damage
In neighboring town, or nearby rural area if rural	29	46	28	8
In own town, or immediate farm neighborhood if rural	24	32	31	10
In more distant town or city but still within White County	4	7	6	--
Outside White County but in Arkansas	4	3	3	6
Outside the state	1	2	--	--
Not reported	5	8	7	5
No temporary shelter obtained	32	2	39	71
Number of interviews	139	59	32	48

Of those individuals who had their houses destroyed or severely damaged, 98 percent took up temporary quarters elsewhere. Of the persons who sustained such damage as to make the house unlivable but repairable, 71 percent obtained shelter elsewhere that night. On the other hand, of those whose homes were lightly damaged, less than a third stayed elsewhere that night.

These data would indicate that respondents usually took shelter elsewhere only when their own living quarters were completely unlivable. Even a slightly damaged house almost certainly had its windows blown out--a factor of some importance, in view of the intermittent rain and the cold temperature that night, and the fact that the electricity and gas supplies were shut off. Often, too, the damaged houses became places of refuge for those individuals who had their homes completely destroyed. This frequently meant considerable overcrowding--especially if several rooms in the house were unlivable because of storm damage.

[1] This includes those persons who initially took shelter elsewhere after the night of the tornado. However, since practically all persons who moved to temporary shelter did so that night, the very few cases that did not are included here.

However, it would appear that remaining in damages homes was primarily a matter of choice rather than of necessity. If a respondent could not obtain quarters with relatives, he could have easily gotten it through various organizational sources--e.g, the Red Cross and Harding College in Searcy. Certainly there were no complaints on the part of respondents that they could not get shelter that night. Exactly what is involved in this preference of respondents for their own homes if they were at all livable, is not altogether clear. Probably the sheer familiarity of the physical setting, although somewhat battered in many cases, was psychologically reassuring after the dramatic and disturbing experience of undergoing a tornado.

It may be noted that most persons who obtained shelter took it in private homes of known individuals rather than in public quarters (see Table 4-23). Nearly half of all respondents, moreover, obtained their first shelter with relatives. Another fifth of the impact respondents got shelter with acquaintances or with close friends. Practically no one stayed with strangers, in hotels, or in temporary quarters (e.g., tents or trailers) that night.

Table 4-23

TYPE OF RESPONDENT'S FIRST TEMPORARY SHELTER

Type of Initial Temporary Shelter	Percent of All Persons in Impact
Staying with relatives	47
Staying with intimates	4
Staying with particular known others	13
Staying with strangers	1
Staying in own family unit: of tent and trailer variety	1
Staying in own family-unit: rented hotel rooms	1
Did not get temporary shelter	32
Number of Interviews	139

The evidence is fairly clear-cut that people neither used nor needed public or mass temporary shelters. However, the particular social characteristics of this area--a relatively homogeneous rural area, with many extended kinship relationships--should be kept in mind in this connection. Many people had relatives or acquaintances nearby (i.e., within the county) with whom they could stay. It is very unlikely that a highly urbanized population would have such opportunities available to them.

As it was, even in this area, many individuals had to leave their own immediate area to get their first shelter (see Table 4-22). Only about a quarter of the impact sample got shelter in their own town or in the immediate neighborhood of their own homes. A much smaller percentage went outside White County or outside the state for temporary shelter. If a city like Searcy had been badly hit instead of only the smaller towns, there probably would have been more of a shelter problem, with victims having to go greater distances for quarters.

It should also be noted that only one percent of all the respondents reported that they had to separate from family members when they obtained temporary shelter that night. Thus, practically all households managed to keep their members together. Not included here, of course, are the few cases where some member was separated from other family members as a result of hospitalization.

A comparison of the different communities in regard to the first type of shelter obtained, showed practically no differences that appeared to be significant. There was a slight tendency for individuals in Doniphan to take temporary shelter in their own town somewhat more than respondents in other impact areas. This is probably related to the very closely-knit, in-group feeling of this small village, and to the fact that many of the residents had relatives only in that town. In other impact areas one gets the impression that more of the residents had relatives living outside the stricken areas.

A substantial number of impact respondents moved on to a second temporary shelter.[1] About a third of all the respondents in the impact areas obtained a second temporary shelter. This is about one-half of those who obtained an initial temporary shelter. This, however, does not necessarily mean that those who did not get a second temporary shelter quickly went back to their original homes. As will be indicated later, some persons stayed in their first temporary shelter for quite some time.

As is indicated in Table 4-24, there was a shift in the type of temporary shelter obtained. Those respondents who obtained second temporary quarters tended to get family-unit quarters solely for themselves, rather than moving into an already-occupied unit with others (as was the pattern with regard to the first temporary shelter). Over a third of the respondents who got second temporary quarters rented another house, and about another fifth of them obtained tents or trailers.

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[1] A few individuals had more than two temporary shelters. For convenience, however, we will speak only of a second temporary shelter, including therein those few individuals who had more than two such shelters.

Table 4-24

TYPES OF INITIAL AND SECOND TEMPORARY SHELTERS

Type of Shelter	Percent of Impact Persons Who Got Temporary Shelter	
	Who Stayed in Initial Shelter	Who Moved to Second Temporary Shelter
Staying with relatives	69	27
Staying with intimates	6	7
Staying with particular known others	19	9
Staying with strangers	2	—
Staying in own family-unit: rented house	2	36
Staying in own family-unit: tent or trailer	2	20
Number of Interviews	96	44

Since a preliminary analysis showed no major areal differences in types of second temporary quarters obtained, the community-wide comparisons are not reported in detail here. However, there was a tendency for those people who obtained tents or trailers to be from Doniphan, whereas respondents who rented other houses, in general, came from Judsonia. It is probable that this has something to do with the socio-economic status differences of the two towns. Respondents from Doniphan were less able to rent and consequently were more likely to accept offers of tents and trailers (primarily from the Red Cross).

An analysis of the location of the first shelter as compared with the location of the second shelter showed no changes. That is, the approximately equal distribution of location in own town and in a neighboring town that was found for the first temporary shelter, was also found for the second temporary shelter. In this respect, there was no clear-cut movement back to the original area of residence. This was to be expected, given the limited time period over which the study extended.

It is fairly clear that most of our impact respondents were seriously dislocated as far as loss of permanent shelter goes. A majority of them were still in temporary quarters when the field study was going on. This means that, for at least two weeks these people were living in what they considered non-permanent quarters. A few of these people, it is true, had moved into houses of their own, but these, for the most part, were considered temporary and not permanent quarters. The majority of impact respondents, at the time they were interviewed, were still doubling up in temporary quarters with others, with apparently no immediate change in sight for most of them.

Respondents reported the duration of their stays as follows:

> That night we went to his sister's in Searcy. We've been staying over there with her until now, until we get our house where we can live in it. (Case R-138, p. 10)

> And I'm still there. We'll be under his roof till I get a place for us. (Case R-130, p. 7)

> I stayed one night at my husband's sister, and from then on I stayed at his daddy's. (Case R-310, p. 12)

As would be expected, the dislocation increases with the extent of damage to the respondent's own home. Nearly all of the respondents with destroyed homes were still living in temporary quarters when they were interviewed. A majority of those with heavily damaged homes were also still residing in temporary shelters. On the other hand, almost all of those whose homes were only partly or slightly damaged, had found permanent shelter (in most cases, had returned to the house occupied prior to the tornado) by the time of the interview.

Table 4-25

DURATION OR TOTAL TIME SPENT IN TEMPORARY SHELTERS

Duration	All Impact Respondents	Percent of Respondents With Destroyed House	Heavily Damaged House	Only Light Damage
Less than a day	3	—	—	8
One day to less than 5 days	3	2	—	6
Five days to less than a week	1	2	—	2
One week to less than two weeks	4	2	3	6
Two weeks or more	1	2	3	—
Still living in shelter at time of interview	54	92	59	4
No shelter obtained or duration unreported	34	2	34	73
Number of Interviews	139	59	32	48

Derivative Threats

After the tornado passed, all danger was not over. It is to these post-impact threats that we now turn. Only the more direct types of endangering events will be considered in this section. More indirect threats, such as looting, will be discussed in later chapters.

Threat of a New Tornado

While it is somewhat difficult to get an accurate picture of what really did occur, it does seem as if a new storm of a non-tornado variety struck the area sometime after midnight. At the very least, it rained intermittently, with thunder and lightning, most of the night. The climatological data of the Weather Bureau appear, in general, to bear out the reports of respondents.

Table 4-26

REACTIONS TO PERCEIVED THREAT FROM RECURRENT OR SECOND TORNADO, BY SEX OF RESPONDENT

Reaction	Percent of All Persons in Impact	Percent of All Males	Percent of All Females
Took some protective action	10	3	15
Mention of threat but no indications what actions taken	6	4	9
Mention of threat but no action taken	6	4	7
Mention of threat and waiting for further development	1	1	1
Mention of threat but felt sufficiently protected where located at time	1	--	1
Reaction unreported, no threat perceived, or danger denied	75	84	65
Number of Interviews	139	72	67

As can be seen from Table 4-26, about a fourth of the impact respondents feared that a new tornado was going to hit that night. There was considerable variation, however, in the time when such individuals thought another tornado was going to hit them. Some of them felt afraid of a recurrence soon after the first one hit. As one respondent stated:

> After the storm left here...it was just aroaring on... and I told my husband I thought it was coming back...I really did, I did think it was coming back. (Case R-322, p. 13)

Other respondents did not perceive the threat of any new tornado until well into the night. One respondent reported this as follows:

> There was another cloud came up about, must have been about 4:30 that morning. Awful thunder and lightning. Fortunately, my sister-in-law had a cellar, and we crawled into it. (Case R-138, p. 20)

It was not only that another storm occurred, but also the fact that many people were hypersensitive to anything that could be interpreted as a sign that another tornado was a possibility, was important in determining reactions. Storm cues that would normally have been ignored, were attended to and weighted regarding their implication. As one respondent put it:

> That night about two o'clock or so, it was thundering lightning. Why, I couldn't sleep much from wondering what it was doing, you know. Fellow knows something like that, he can't sleep, I guess. (Case R-346, p. 17)

While a new tornado threat was perceived by about a quarter of the impact respondents, only about a tenth of them (see Table 4-26) took any sort of protective action. Most such action involved going to storm cellars or comparable structures. Here again there was a considerable time difference between respondents in terms of the duration of such activity. A few stayed in their protection locations the rest of the night; most, only for a relatively brief period of time. In a very few instances, some respondents went back and forth between a storm cellar and their homes three or four times that night.

The data also suggest that women were more sensitive to recurrent threats than men. Thus, about 36 percent of the women, but only 17 percent of the men, stated that they thought there might be another tornado that night. More women than men actually took protective actions.

Other Threats

The possibility of a new tornado was not the only threat perceived that night. As shown in Table 4-27, nearly half of the impact respondents saw themselves faced with other dangers. The fear of being electrocuted was the most prominent, with about a fifth of the respondents reporting it. Typical comments on this point were as follows:

> There was telephone posts down and treetops and wires till we was afraid to go anywhere. (Case R-302, p. 7)

> Having his mother and the children with us, and we were afraid we couldn't keep them off the wires because we didn't know that there was no electricity in any of the wires. (Case R-138, p. 11)

> Cautioned others to be careful and then to watch the wires, because I was afraid of a live wire. (Case R-202, p. 7)

> [reference to wires]...everyone was scared of them... we was afraid to hardly get close to 'em...cause everyone had told us if they should even turn on the 'lectricity for a few minute, that it would just melt anyone that was close to it. (Case R-246, p. 20)

> The highway had trees out over the edge of it, and the wires all over it, so that it was really dangerous. (Case R-342, p. 10)

Actually, of course, there was no danger from the fallen power lines. An official of the electric power company, interviewed as a special respondent, explained that:

> Electric service is automatically discontinued when the lines get in trouble. There are circuit breakers on our large transmission line and also on our distribution lines that have proper protective relays. Whenever they get in trouble with the circuit, it automatically opens. That's what happened in this instance...You don't open a circuit; it opens itself, and then after the trouble, we restore service by closing the circuit...Either hitting the ground or the conductors coming together causing a short, either one or the two, both of which happened in this area, making it dark... if you had a piece of tin that would go and hang over the line and contact two conductors, why, that would cause a short and open the circuit, or if you'd have a break lying over the ground, why, the same thing would happen, or maybe the conductor is not broken but is just blown over, and the conductors go to the ground. We have ground relays on these circuit breakers, and any time you get a flow of current to the ground, it trips the circuit breaker. (Case S-39, p. 5)

Next to the fear of electrocution, the threat involved in being exposed to the elements was cited most frequently. About 14 percent of all the respondents in the impact areas mentioned it. Frequently it was associated with an already weakened state of the individual--i.e., the respondent already had a cold, or had gotten up from a sick bed, and was afraid of the consequences of being out in the cold and rain.

Table 4-27

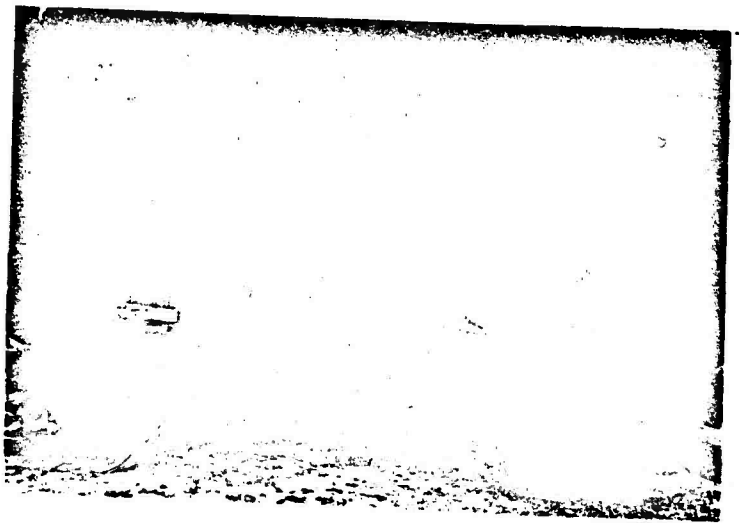
DERIVATIVE THREATS PERCEIVED

Nature of Threat Perceived	Percent of All Persons in	
	Impact	Non-Impact
Electrocution	19	7
Exposure	14	1
Injury from debris	9	5
Fire	4	--
Traffic hazards	3	6
Explosion	1	1
Asphyxiation	1	--
Other threats not classified elsewhere	2	--
No derivative threat perceived or reported	56	85
Number of Interviews	139	158

No other danger was perceived by more than a tenth of all the respondents in impact. Various threats were mentioned; they included such things as fear of stepping on nails sticking up through debris, of becoming involved in an automobile accident on the debris-strewn and slippery highways, of being caught in an explosion as a result of escaping gas.

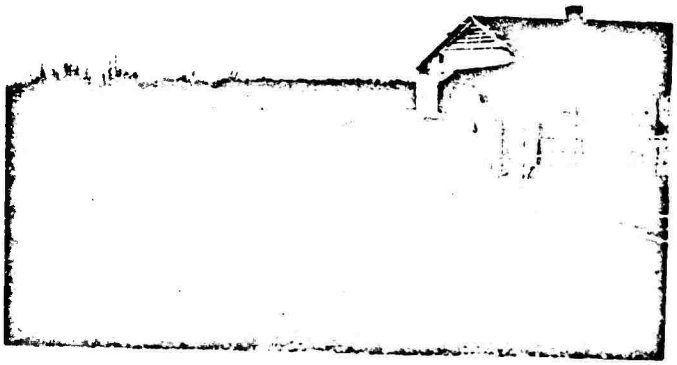
Respondents in non-impact areas reported fewer derivative dangers. In fact, only about 15 percent of all these people designated such threats to themselves. The danger of electrocution also ranked highest among them. However, only seven percent of the non-impact respondents reported it. It is very probable that the individuals who reported this danger were those people heading towards the impact areas after the tornado had passed, who had to drive over or near the many broken and fallen wires on the highways. An observation by an electric power company official in this connection seems pertinent. He noted:

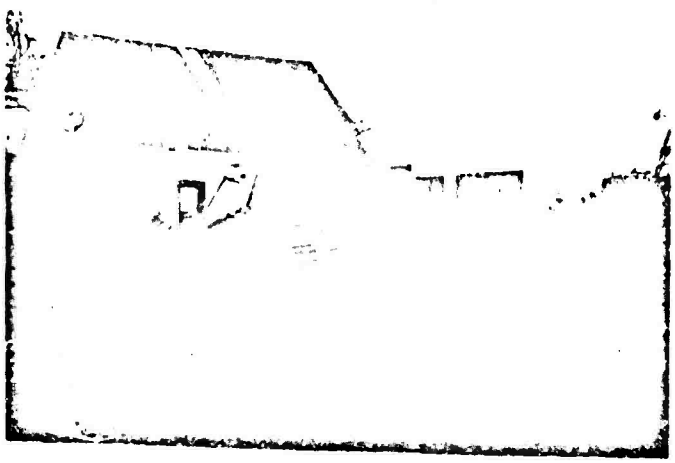
> I went out to Judsonia with my man. When I got there, I saw the traffic was blocked up for a long stretch. There were State Police and other people standing up at the head of the line looking at the wires [which had blown across the street at the entrance to Judsonia] and not knowing what to do. I walked up and said, 'Get me a pair of clippers, and I'll get you through here.' One of the men on guard said, 'You can't touch that, it's high-voltage.' 'Get me the clippers,' I said. 'You can't touch those wires,' he said. So I reached out like this and grabbed hold of the wire. I said, 'Now will you get me the clippers?' So someone got hold of



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> some clippers, and I started cutting cables. I knew that the wires weren't carrying juice. I've been in the business a third of a century, and I can tell a hot wire. I was looking at those wires as I was driving in from Searcy, and I knew they were dead. But none of those people there--the police or anyone else--knew this. (Case S-18, p. 2)

THE LATER POST-IMPACT PERIOD

By the later post-impact period, we have reference to the time period from about twelve hours after the tornado (or 6 A.M. on Saturday, March 22) to the day when the field study was completed (April 18, 1952).

Inventory

Most people sometime during impact night found out about deaths and injuries in their immediate or household families. They were also able to get a very rough idea of the major property damage they had sustained. However, with regard to more distant family members and the details of property losses, more time was required for respondents to learn what had happened and what they were faced with.

Deaths

Only one percent of all the impact respondents reported that a member of the household was killed in the tornado.[1] This reflects the fact that, despite all the damage and destruction, relatively few people were killed. As indicated in Chapter II, only 46 persons died as a result of the tornado in all of White County.

Very few individuals lost very close relatives. No one in the sample, for example, lost a spouse or a child. Only about one percent reported the loss of a parent or sibling.

However, a fairly larger proportion reported losing non-household kin in the storm. Since these obviously were not close relatives, they must have been of the order of relationship of uncle, aunt, nephew, niece, cousin, in-laws, and the like. As shown in Table 4-28, nearly a fifth of the individuals in the impact areas and about five percent of the respondents in non-impact areas had at least one relative killed. On this basis alone, it can be seen that a considerable number of individuals were rather highly involved in this tornado. The closer kinship ties in this section of the country, compared with what might be found elsewhere, should also be considered in this connection.

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[1] One individual who fell in the original sample was killed, along with all adult members of his household.

Moreover, most respondents knew at least one acquaintance who had lost his life. This is what was to be expected, for most people in areas of this type usually know one another by name, at least. This fact alone would result in greater involvement in a disaster than in an area where relationships were more impersonal and anonymous.

Table 4-28

TOTAL NUMBER OF NON-HOUSEHOLD KIN KILLED

Number of Non-Household Kin Killed	Percent of All Persons in	
	Impact	Non-Impact
Explicit denial any relative was killed	73	87
One relative killed	9	3
Two relatives killed	4	1
Three or more relatives killed	4	--
Small but indeterminate number	1	--
No relatives or number of non-household kin killed unreported	9	8
Number of Interviews	139	158

Injuries[1]

Although almost half of the impact respondents reported that they were injured in the tornado, relatively few of the injuries were of a serious nature. As indicated in Table 4-29, the bulk of the injuries reported fell in the category of minor lacerations, cuts, bruises, and scratches, or in the category of aggravation of non-storm-incurred ailments.[2] Considering the destruction wrought by the tornado, the frequency of serious injuries sustained must be considered low, possibly because of the elementary precautionary-protective actions most individuals were able to take (even though the majority of them had little or no forewarning).

When a comparison is made of the injuries sustained by respondents and those incurred by their spouses, the same important fact stands out. Of the many that were injured, relatively few were seriously hurt. The

[1]Individuals injured while engaging in rescue work are not discussed below. About one percent of the impact respondents were hurt while engaged in such activity.

[2]It would appear that the aggravation was relatively minor in most cases.

proportionately lower rate of injuries-to-spouse reported is probably accounted for (a) by respondents who had no spouse, and (b) the tendency not to report very minor injuries that other people sustained.

Table 4-29

NATURE OF INJURY TO RESPONDENT AND SPOUSE

Type of Injury	Percent of All Impact Respondents Reporting Injury	
	To Self	To Spouse
Minor lacerations, cuts, scratches, bruises	22	14
Aggravation of non-storm-incurred ailments	16	1
Severe lacerations or punctures	5	3
Sprains	4	2
Extensive bruises ("black and blue all over")	4	4
Simple fracture	1	1
Internal injuries	1	1
Compound or multiple fracture	1	--
Skull fracture	--	1
Other injuries herein not classified	3	1
No injuries or type not reported	58	77
Number of Interviews	139	139

When a comparison is made between major and minor injuries sustained by persons standing in particular relationships to the respondent, it would appear that as many major injuries were sustained as minor ones (see Table 4-30). However, this is highly suspect, especially in regard to non-household kin or intimates. There was a very great tendency on the part of respondents to report serious injuries sustained by non-household others and not to report minor injuries. The dramatic cases would be related to an interviewer, but even under probe, the relatively inconsequential would not be or would be only incompletely reported.[1] The table below gives a measure of the range of people who were injured who were related in some way to the respondent.

[1] Moreover, in a number of cases it was clear that the respondent simply did not know what, if any, minor injuries were sustained by relatives or acquaintances outside his immediate household. The fact of injury was frequently known by the respondent only if the non-household person had suffered severe injuries or had been hospitalized.

Table 4-30

RELATIONSHIP TO RESPONDENT OF PERSONS WHO SUFFERED INJURIES

Relationship	Percent of All Persons In Impact		Percent of All Persons In Non-Impact	
	Minor Injuries	Major Injuries	Minor Injuries	Major Injuries
Spouse	15	8	--	--
Offspring	9	4	1	--
More than one offspring	2	2	--	--
Father	1	--	1	--
Mother	2	1	2	--
Sibling	6	2	1	1
More than one sibling	--	1	1	--
Other relative not classified above	14	13	6	7
More than one other relative	8	6	2	3
Intimates	5	10	6	6
No relative or intimate injured or injury not reported	55	63	85	85
Number of Interviews	139	139	158	158

Property

The extensive property destruction in impact areas has been already noted in previous sections. Table 4-31 details the nature of the major property losses by impact respondents. An examination of this table indicates that all but seven percent of the respondents in the areas hit, reported major damage to property. Over three-quarters of them stated that their houses sustained major damage. While reports of damage to other items of property are considerably less, it is probable such figures underestimate the losses sustained. An individual who had his home completely destroyed, for example, was likely to lose most of his house furnishings, personal possessions, and documents. In view of the overall loss, however, he was not so likely to report losses which he viewed as relatively minor in relation to the destruction of his residence. How widespread property destruction was in the impact areas might be gauged from the fact that all but three percent of the impact respondents reported house damage. As noted above, over three-quarters of the respondents reported major house damage. Another 17 percent reported minor damage.

The great loss sustained in the impact areas was all the more serious because relatively few respondents had insurance of any sort. Only about five percent of all the impact respondents had full insurance on their houses, and another 17 percent reported partial insurance (in the majority of the cases falling far short of the actual damage sustained).

In this connection it may be mentioned that in all impact areas except Doniphan, 70 percent or more of all the respondents owned their own homes. In Doniphan, only 12 percent owned their own homes, the majority of the residents renting from the company by which they were employed.

Table 4-31

MAJOR PROPERTY LOSSES SUSTAINED BY RESPONDENT*

Type of Loss	Percent of All Persons in Impact
House	80
House furnishings	35
Minor outbuildings (e.g., garage)	28
Personal possessions (e.g., clothing)	19
Major (income-producing) outbuildings (e.g., barns)	11
Business property, including store	9
Car	8
Livestock, farm equipment	7
Documents	3
Other property items not classified elsewhere	9
No major type of loss reported	7
Number of Interviews	139

*Major property loss is defined as destruction, disappearance, or substantial damage to the items listed.

Other Deprivations[1]

Deprivations in addition to deaths, injuries, and property losses, fall into three general categories: 1) disruption of domestic routines, 2) work disruptions, and 3) storm-incurred expenses and income losses (see Table 4-32). Of course, not all of the major disruptions that were experienced were felt as a deprivation. As shown in Table 4-32, only for some respondents was the undergoing of a major disruption mentioned as a great personal burden, bother, or matter for concern. In fact, with one exception, major disruptions were not felt as deprivations. The sole exception was in regard to the shelter problem.

[1] Deprivations suffered as a result of a disruption of community-wide services are discussed in Chapter V.

As might be forecast, the differences between impact and non-impact are generally large and in the expected directions. Individuals in the areas that were not hit had relatively few disruptions. Furthermore, very few of the disruptions they had were felt as deprivations.

Table 4-32

DOMESTIC ROUTINE AND WORK DISRUPTIONS AND STORM-INCURRED EXPENSES AND INCOME LOSSES

	Percent of Persons Who			
	Experienced Disruption in		Felt Disruption as Deprivation in	
	Impact	Non-Impact	Impact	Non-Impact
Major Disruption of Domestic Routine				
Disruption in living routine, including shelter problems of crowding, living with others, etc.	52	4	26	—
Disruption in personal routine, everyday schedule, etc.	48	35	10	3
Disruption in cooking-eating routine, including lack of facility for food preparation	24	13	8	6
Disruption in household routine because of generalized disorder, dirt, disarray, etc.	23	1	9	—
Work Disruption				
Cessation of work for one day or more	22	10	4	1
Alteration of work routine	19	15	7	1
Storm-Incurred Expenses and Income Losses*				
Loss of income by job disruption	12	3	8	2
Expenses—hospital, mortuary, etc.	4	1	3	—
Loss of income because of death or injury of wage earner	1	—	--	—
No losses or deprivations experienced, or losses and deprivations unreported	11	42	48	89
Number of Interviews	139	158	139	158

*Not included here is income loss sustained as result of personal or own business property destruction or damage.

Given the fact that nearly two-thirds of the impact population obtained temporary quarters, it is not surprising that over half of all the respondents in impact experienced such shelter problems as crowding, the need of adjusting to living with others, etc. That the percentage of those who obtained shelter is not equivalent to those who experienced shelter problems, is probably explainable in terms of several factors. Some respondents were able to obtain quarters in very large and semi-empty houses. For example, some grown children went back to their parents who were living alone in the old family house. Other respondents stayed such a short time in temporary quarters, perhaps for a night or two, that they did not see any problems in that period. Still other respondents had been living in practically equivalent circumstances prior to the tornado, and an experience like crowding was part of their ordinary living conditions.

Those who did experience shelter problems expressed themselves as follows:

> Our worry was having a place to stay, to live. His sister's home is not large, and we have been crowded in there with her. She has been wonderful about it, but we are hoping to be able to leave here in another few days, permanently. (Case R-138, p. 27)

> We're just piled in on my dad's. As soon as he gets out of the hospital and gets able, we will get out from my parents. (Case R-154, p. 15)

About half of the respondents who experienced shelter problems felt this disruption in their living routine as a deprivation. Looked at in another way, it would appear that of all impact respondents who took shelter in temporary quarters, about a third of them felt it as a burdensome or bothersome concern. However, everything considered, the proportion of individuals feeling this way seems quite low. It may be speculated that this is accounted for, in part, by the fact that most respondents were able to put up with relatives. Even though they had left their own homes, they were still, in a sense, in a "home" atmosphere. Occasional remarks of respondents support our hypothesis, but the evidence is far too impressionistic to do more than suggest it as a possible point for systematic study.

Nearly half of the impact respondents reported a major disruption of their personal routine. In one sense, of course, everyone in the area experienced a disordering of their everyday schedules and routines. The above figure, consequently, should be taken as an indicator of the very minimum proportion of individuals who underwent very major disruptions of their personal routine for more than a short period of time. As one respondent said in answer to a probe regarding the upsetting of her routine:

> I should say so. I didn't...a week there I didn't get a thing done, seems...In the last two weeks seems like I did just what I thought I had to and let the rest of it go. (Case R-246, p. 27)

Few respondents, however, felt that the disruption of their routine was a deprivation in the sense of being a problem of concern.

The relatively sizable proportion of the non-impact respondents who reported a disruption in personal routine is probably traceable to those persons who engaged in volunteer activities of some sort, or who provided individual relief and rehabilitation aid for the disaster victims.

A disordering of cooking-eating routines and a disruption of household routine was reported by about a quarter of all the impact respondents. This is probably a very low estimate of the proportion of respondents who experienced such disruptions. Obviously, individuals who had their homes destroyed or very seriously damaged, necessarily underwent such disruptions, but they were also, because of that very fact, less likely to report these somewhat obvious facts. Those who mentioned them made remarks like the following:

> We eat at 6 in the morning and at 12 at noon and 5 or 5:30 at night or 6...that was worst about it. I just couldn't get straight, you know, on what we were supposed to do...and to get around in here and clean up. I had to clean up everything in the kitchen and scour all the dishes and everything before we could cook anything to eat. It was in such a mess. (Case R-322, pp. 15, 17)

> I had my brother and his family here three days, and my sister and mother a couple of days. It was about a week before I was back to normal where I could cook like I wanted to. (Case R-238, p. 21)

Work disruption for over a day was reported by a little over a fifth of the impact and about a tenth of the non-impact respondents. Cessation of work in these instances resulted from many factors. In some instances, as at Doniphan and Judsonia, plants providing employment for large numbers of people in the town had to close down for repairs. Other persons could not work because of their injuries. Still other individuals had to take time off from their jobs in order to secure shelter or rehabilitation aid for themselves and their families. Generally speaking, work disruption in most instances was not the result of a lack of job availabilities as such. Rather it was the result of respondents feeling it necessary to attend personally to some disaster-incurred problem (e.g., taking off a day or two from their work in order to hunt around for a place to live).

In a number of instances, work routines had to be altered. This involved such matters as longer hours, different time schedules, working at somewhat different tasks from ordinary, etc. For some of the plants in the area, the alteration of work routine involved working less hours.

However, although some sort of work disruption was experienced by about 40 percent of the impact and 25 percent of the non-impact respondents, relatively few respondents found such disruption a deprivation. Only around 11 percent of the impact and two percent of the non-impact population reported work disruption as being a matter of great concern or worry. There are some indications that the matter was primarily a deprivation to those individuals who lived on a day-to-day basis, and not to those persons who felt secure in having a regular job. One respondent who expressed concern stated:

> I knew you could find plenty to do after they got straightened up.../but/ really didn't know what to do. I didn't know whether the work would be stopped or what. So I was just wondering, you know. A person works like I do, you've got to work about every day to make a living. (Case R-346, p. 11)

Storm-incurred expenses and income losses were reported by few individuals. Part of the low income loss reported is due to the fact that the majority of people did not even lose a day of work. Another factor involved was that some businesses and concerns kept workers on their payrolls even though the workers were not on the job. The firms did not feel they should further penalize victims of the tornado by cutting them off when they needed help most.

Very few people reported such directly storm-incurred expenses as hospital and mortuary costs. Doctors and hospitals frequently donated their services without charge. In many instances, the Red Cross provided for such matters.[1]

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[1] For expenditures by the Red Cross on medical assistance, see Table 5-13 in Chapter V.

Individual Relief and Rehabilitation

The disaster victims received aid and assistance from very many sources--individuals as well as organizations. In this section we will confine ourselves to a description of the relief and rehabilitation help individuals received from and gave to one another. In the next chapter, we will discuss the activities of the formal agencies and groups. Both individuals and organizations, of course, were operative at the same time. The distinction is made primarily for expositional purposes and should not mask the common efforts of both individuals and formal groups in this activity.

Respondents did not depend solely upon non-household individuals or informal or formal organizations for relief and rehabilitation aid. About four out of every five of the impact respondents performed relief activities for themselves. Not included here, moreover, are activities which were engaged in to meet daily needs--e.g., obtaining food, arranging for temporary shelter, providing clothing, etc. If these latter activities were included, it is very probable that none of our respondents (except the seriously injured and hospitalized) failed to provide relief assistance of some sort for themselves or household members.

TABLE 4-33

SELECTED RELIEF AND REHABILITATION ACTIVITIES PERFORMED FOR SELF OR HOUSEHOLD MEMBERS

Nature of Relief and Rehabilitation Activity	Percent of All Persons in Impact
Salvaging own property or debris clearance around own property	71
Repairing or rebuilding own home	18
Repairing or rebuilding own non-residential structure (e.g., barn)	8
Renting temporary quarters (e.g., tourist cabin, hotel room, etc.)	4
Taking care of and/or nursing injured household member	2
Purchasing household furnishings	2
Crop or farm work which respondent does not normally engage in	2
Other specific relief and rehabilitation activities	2
Number of Interviews	109

By far the most common self-help activity was salvage or debris clearance around one's own property. Nearly three-quarters of all impact respondents reported this. Comments in this connection went as follows:

I haven't been over here except just to come over to start cleaning up our place. (Case R-138, p. 18.)

We carried all our stuff over here to a neighbor's. (Case R-346, p. 7.)

We worked....getting the bales of hay hauled in--had one bale in the house that didn't blow down--and we hauled the bales of hay to that. And we pulled a tarpaulin over the rest of the hay that was in the hay shed. (Case R-250, p. 2.)

We came back out here. Moved all the furniture around the dry places we could find around the house. We pushed everything in the dry corners round about as we could. (Case R-314, p. 2.)

We came on back into the house then and naturally I went to mopping water and picking up things. (Case R-202, p. 2.)

We found the bed and bed clothing and picked them up. We took them wet quilts off and piled them together and put our mattresses over. (Case R-298, p. 2.)

Moved all my furniture, all I could. (Case R-106, p. 11.)

Then I came back and started cleaning the mess up. Paper torn and trash laying all over the house. Clothes got wet. Had to wash everything. (Case R-310, p. 6.)

If the seriously injured and those incapacitated because of age or health are excluded, it is probable that almost all people took some care of their own damaged property or salvaged what items could be saved from their own destroyed homes.

Almost a fifth of all respondents in impact areas reported that they had started to repair or rebuild their own homes. However, this is probably a minimum figure for the individual who would eventually engage in such activity. The field study was finished about three weeks after the tornado hit--at which time some respondents still had more pressing personal problems (e.g., hospitalization of a family member, own injuries, inability to take time off from regular work). It seems reasonable to suppose that some of these individuals would in time get around to repairing or rebuilding their own homes.

Such repair work as was done by the majority of respondents was of a relatively minor nature, e.g., patching holes in a roof or putting a door back on its hinges. More basic structural work was left to laborers skilled in such work. While there were a few complaints about labor and supply shortage in the construction field, any such shortage was eased somewhat by the progressive influx into the impact area of large groups of workers such as carpenters,

plasterers, etc. They assumed the burden of major construction or repair work.[1]

Individuals in the impact areas received various kinds of relief and rehabilitation aid from other individuals. Such help was given by kin, intimates, known others (i.e., acquaintances or persons known by name) and strangers. The nature of the specific aid received and from whom such assistance was obtained is presented in Table 4-34.

TABLE 4-34

NATURE OF RELIEF AND REHABILITATION AID* RECEIVED FROM INDIVIDUALS

Nature of Aid Received	Percent of All Persons In Impact Who Received Aid From: Kin or Intimates	Known Others	Strangers or Unspecified
Immediate temporary shelter	63	19	1
Food and beverages	16	4	2
Aid in salvaging, debris clearance (including transportation and storage of goods)	12	5	4
Clothing	6	8	2
Household furnishings	6	2	3
Aid in repairing, rebuilding or replacing home	4	3	1
Money	2	1	1
Home medical care	2	1	-
Aid in repairing, rebuilding or replacing non-residential structures	1	1	1
Crops and farming assistance	1	1	1
Information	-	2	1
Other relief and rehabilitation aid	12	16	6
No aid received from individuals	26	61	81
Number of interviews	139	139	139

* No aid for which the respondent paid is included here.

As the table shows, kin (only in relatively few instances, intimates) provided the bulk of aid received from individuals. Nearly three-quarters of the impact respondents reported receiving some sort of relief or rehabilitation

[1] However, mention should be made of the free repair and rebuilding services donated by a group of Mennonites who came into the impact areas. Those respondents who were helped by this group were quite grateful for such assistance.

aid from such individuals. Known others provided aid to about 40 percent of the cases. This involved assistance obtained from townspeople and, in some cases, from employers. About a fifth of the respondents reported getting help from strangers. It is possible, moreover, that this is an overestimation of the proportion of individuals who got assistance from strangers. Some of these "strangers" were possibly known, at least by sight, to the respondent.[1]

Immediate temporary shelter was by far the most frequently provided aid. Nearly two-thirds of all respondents reported receiving shelter from kin or intimates, and nearly a fifth reported obtaining it from particular known others. It ranked first in the specific kind of aid obtained both from kin-intimates and particular known others. And as has already been noted in an earlier section, impact respondents overwhelmingly obtained their immediate temporary shelter with individuals and not with or through formal organizations. Of especial interest is the fact that this is the one particular kind of aid in which individual or formal organizational sources were not reported as giving approximately the same proportion of assistance. The main factor apparently involved here was the social composition of the hit area. Individuals apparently preferred relatively private quarters with relatives to mass shelter or housing with strangers.

Obtaining of food and beverages from kin and intimates was reported by relatively few respondents. It is probable that this figure is an underestimation of the proportion of individuals who obtained such aid. For example, respondents who obtained immediate temporary shelter with others frequently, in the beginning at least, were also fed meals. This seems fairly clear from the nature of the total situation reported. Unfortunately, however, interviewers did not always clarify this point so the above figure refers only to explicit references to getting food and beverages. Of course, in the days following the tornado, it was possible for any of the victims to get meals through the Red Cross, the Salvation Army, and some church groups. As various respondents commented:

> But I was getting such food as was necessary from the Red Cross and Salvation Army. (Case R-130, p. 6.)
>
> They brought us things to eat here. They brought us anything you would want to eat. They brought it to us. They brought the lunch wagon in, three times a day. I ate off of it. (Case R-322, p. 16.)
>
> They fed so many every meal, every day. There was mobile canteens came around and delivered it. (Case R-138, p. 16.)

Because of this food distribution on the part of organizations, the impact

[1] This follows from the fact that included in this category are those instances where it was impossible to ascertain from the interview the exact relationship of the donor to the respondent.

respondents actually did not need to obtain food and beverages from other individuals.

Impact area residents not only received, but also gave relief and rehabilitation aid to others. This is summarized in Table 4-35.

TABLE 4-35

NATURE OF AID* PROVIDED TO OTHERS BY IMPACT CASES

Nature of Aid Given	Percent of All Persons In Impact Who Provided Aid For:		
	Kin or Intimates	Known Others	Strangers or Unspecified
Immediate temporary shelter	10	11	3
Food and beverages	3	1	-
Aid in salvaging, debris clearance (including transportation and storage of goods)	4	1	4
Clothing	2	1	1
Household furnishings	-	1	1
Aid in repairing, rebuilding or replacing home	3	1	1
Crop and farming assistance	-	1	-
Information	1	1	1
Other relief and rehabilitation aid	6	12	9
No aid given to individuals	78	78	82
Number of interviews	139	139	139

* No aid for which the respondent was paid is included here.

Relatively few impact respondents provided relief and rehabilitation aid for other individuals. No more than about a fifth of the impact respondents reported giving such aid either to kin-intimates, to known others, or to strangers. Given the nature of the situation--the widespread destruction and the necessity of obtaining aid for oneself or one's family--the above figures are quite in line with what would be expected. Since the amount of aid received from individuals is substantial, the figures indicate that most people in the impact areas were helped by outside sources rather than by sources within the stricken localities. It should be kept in mind that this has reference only to the longer range post-impact relief and rehabilitation aid. With regard to such matters as rescue and immediate emergency relief, impact respondents clearly took care of themselves without waiting for or depending upon outside aid.

Personal and Social Change

Since interviewing for the study was completed about three weeks after the tornado struck, there existed no really good opportunity for studying basic personal and social changes. How much of what was observed and reported by respondents was truly a change in personal or social organization and pattern could only be answered by follow-up studies. The material gathered, however, is highly suggestive and, in some areas (e.g., that of physiological-psychosomatic-psychological reactions), of considerable practical importance whether the change was of long duration or not.

Physiological, psychosomatic, psychological reactions

Several words of caution should be said regarding the findings set forth in this section. Of the materials in the interviews, these are among those that are probably subject to the most error. Generally speaking, there is probably an under-reporting of most of these reactions. This is one of the areas where respondents had great difficulty in verbalizing their reactions, where there was a tendency to hold back on reporting them, and where there was reluctance--sometimes on the part of both interviewer and respondent--to discuss certain matters (e.g., bowel and bladder disturbances, etc.). These factors, as well as the vague nature of many of the symptoms reported, made categorizing and coding of the responses somewhat difficult.

There was also considerable variation in the duration of various reactions. An attempt was made to code the duration of the most serious reaction, but a lack of comparability of the data does not permit the use of the results in a too meaningful manner. It should be noted, however, that many of the reactions were of a relatively long-lasting nature. A few typical comments from interviews conducted two to three weeks after the tornado illustrate the duration of some of the disturbances.

> I don't sleep good yet...I'm just afraid almost to go to sleep sometimes, thinking about the storm. (Case R-302, p. 59.)
>
> My heart has bothered me continuous since the storm. (Case R-322, p. 26.)
>
> (Do you find it harder to keep your mind on things?)...I do yet--even up till now...I just want to quit I guess, just give up or something. (Case R-202, p. 27.)
>
> Every time I shut my eyes I'm down there in all that bunch of wrecked-up buildings...it feels like so bad in the morning when I wake up I can hardly go around. (Case R-154, p. 11.)
>
> Seems like I've almost lost the count of time since then... seems like many times I have to stop and think to know what day it is almost. (Case R-150, p. 21.)

There was also considerable variation in the reported intensity of the kind of reaction. Some persons, for example, had just a little difficulty in getting to sleep, whereas others claimed they could not get to sleep all night. Similarly, thoughts about the storm would be constantly present in the mind of some people, whereas other persons would only think about the tornado in certain situations. This wide range in the reported intensity, frequency and duration appeared to be true of most reactions reported by respondents.

These qualifications, as regards reliability of data and duration-frequency-intensity of the reactions, should be kept in mind in interpreting the findings presented below.

Turning first to pre-storm ailments that have been aggravated since the tornado, Table 4-36 indicates that about 16 percent of the impact and six percent of the non-impact respondents reported such aggravations. There is, of course, no way of knowing if these ailments would have worsened regardless of the tornado. As it stands, the data merely suggest the possibility that undergoing an experience like the tornado aggravates previous ailments. The interpretation of these findings is further complicated by the lack of a complete pre-tornado inventory of ailments.[1] Obviously if the aggravations reported were by most of the respondents who had pre-tornado ailments, they would comprise a sizeable proportion of all such individuals. A relationship might then be postulated between the disaster and the aggravation of ailments. As the data now stand, the best that can be said is that some people with ailments prior to the storm, reported an aggravation of such ailments subsequent to the storm.

TABLE 4-36

PRE-TORNADO AILMENTS AGGRAVATED SINCE THE TORNADO

Nature of Ailment	Percent of All Persons In	
	Impact	Non-Impact
Coronary-circulatory disturbances	6	4
Gastro-intestinal disorders	4	1
Respiratory disturbances	2	1
Genito-urinary disorders	1	-
Other pre-storm ailments	4	-
No pre-storm ailments, or none aggravated since the storm	84	94
Number of interviews	139	158

[1] The approximately 20 percent of all respondents who reported some form of incapacitation prior to the tornado, can not be taken as a base point. Not only are these data likely to be incomplete, but they also include as incapacitating factors, slight injuries and temporary illnesses, as well as chronic ailments. (See Chapter II.)

Acute physiological-psychosomatic[1] reactions were reported by relatively few respondents. As shown in Table 4-37, only about 19 percent of the impact and four percent of the non-impact respondents experienced any such disturbance. While nausea was the most frequently reported reaction, there was no single reaction that stood out to any noticeable extent. It is also fairly clear that almost all of these disturbances were experienced only on the night of impact. They were relatively immediate responses to the storm experience and were not in the nature of a long-run after-effect.

The following remarks by various respondents illustrate the nature of these types of reactions.

> I got out of the truck and got awfully sick. Got out of the truck and vomited. (Case R-154, p. 12)

> I got my worse hurt after the storm. I wasn't really cold /but/ I had a chill. Don't know what else but I was just shaking like I had a chill. (Case R-341, p. 5)

> And I smothered too, you know. I just couldn't hardly breathe and those pains, you know, they were so severe in there. You must couldn't hardly get a long breath. You just had to just kinda breathe just real easy. Not like you could normal. (Case R-322, p. 29)

> We were all sick, just sick to our stomachs, just vomiting after it was over with. (Case R-138, p. 21)

Table 4-37

ACUTE PHYSIOLOGICAL-PSYCHOSOMATIC REACTIONS

Nature of Reaction	Percent of All Persons In	
	Impact	Non-Impact
Nausea	8	2
Hot or cold flashes, sudden chill	4	—
Acute gastro-intestinal disorders	3	—
Fainting	2	—
Shaking, convulsive spasms	2	—
Muscular spasms	1	—
Coronary and circulatory disturbances	1	—
Respiratory disturbances	—	1
Acute physiological-psychosomatic reactions not elsewhere classified	2	—
No acute physiological-psychosomatic reactions reported	81	96
Number of Interviews	139	158

[1] Since there is no way of knowing from the interview data only, if the various reactions were basically psychosomatic in origin and nature, or physiological, the reactions have been grouped together in one category.

Protracted physiological-psychosomatic reactions were much more commonly reported than acute reactions. As shown in Table 4-38, two out of every three impact and about two out of every five non-impact respondents reported they experienced some sort of physiological-psychosomatic reaction that lasted over a quarter of an hour.

Table 4-38

PROTRACTED PHYSIOLOGICAL OR PSYCHOSOMATIC REACTIONS

Nature of Reaction	Percent of All Persons In	
	Impact	Non-Impact
Sleep disturbances	46	31
Loss of appetite	29	12
Headaches	19	8
Respiratory disturbances (including colds)	16	10
Generalized weakness	9	1
Bowel and bladder disturbances	6	--
Coronary-circulatory disturbances	1	--
Disturbances of genital functioning	1	--
Skin disorders (e.g., rashes, hives, etc.)	1	--
General malaise or any vaguely specified, or specified reaction not classified above	15	3
No protracted physiological or psychosomatic reactions reported	32	58
Number of Interviews	139	158

By far the most common reaction was sleep disturbances. Nearly half of the impact cases and about a third of the non-impact cases stated they had some kind of trouble in sleeping. Comments in this connection went as follows:

> I don't sleep very good. Several nights I never went to sleep till 3 o'clock. (Case R-106, p. 27)

> We didn't sleep for three of four nights. (Case R-298, p. 4)

> I didn't sleep any that night hardly...you'd say I didn't sleep any because it was just spasmodically and not good sound restful sleep--and even for two or three days afterwards. (Case R-342, p. 17)

It should be observed, however, that some of the cases of sleeplessness, probably have reference only to the post-impact night. Even though, as

pointed out earlier, most storm-oriented activities were over by midnight, many individuals could not get to sleep. As one respondent put it:

> We didn't sleep much that night, you know, sitting up worrying about things. (Case R-310, p. 10)

In other instances, poor sleep only resulted when there were weather disturbances. As one individual stated it:

> There's been a few nights, it thundered and lightnin' around. Not exactly nervousness--just kind of restlessness, you know. Fellow know something like that, he can't sleep. (Case R-346, p. 17)

Next to sleep disturbances, inability to eat or not feeling hungry was the most frequently reported reaction. Such loss of appetite was, of course, more common among impact than it was among non-impact respondents. This lack of appetite probably did cut down the amount of food-intake and perhaps left people in a weakened state. It may be, consequently, that some of the other reactions reported, (e.g., headaches, general malaise, etc.) are a function of the lack of proper nourishment rather than being direct results of psychological disturbances.

Comments about eating disturbances went as follows:

> I didn't want anything to eat--I wasn't hungry. I didn't eat anything then until Sunday. (Case R-202, p. 26)

> Two or three days anyway, you didn't have any appetite. You didn't want anything to eat or anything. (Case R-118, p. 30)

> Couldn't eat anything. It just took our appetite away too, I reckon. There just wasn't anybody hungry. (Case R-322, p. 29)

> For four days I wouldn't eat a bite. I wouldn't eat for four days. I couldn't eat, didn't want anything. Only thing I wanted was coffee. (Case R-302, p. 59)

> I didn't want anything to eat. I don't think anyone else wanted anything to eat...the next day, all we wanted was coffee and doughnuts. We didn't have any desire to eat a meal [for] I'd say, three or four days. (Case R-167, p. 17)

Headaches, respiratory disturbances (including colds), and general malaise were reactions reported by 15 percent or more of all impact cases. Some of the headaches and respiratory disturbances are probably due to exposure to bad weather conditions following the tornado. Since it rained on and off that night and the temperature fell to nearly freezing, and since many of the disaster victims got extremely wet (in the early hours, at least),

it does not seem unreasonable to attribute some of the respiratory disorders and headaches to such conditions. And some of the later experiences of such reactions, as indicated above, may be due to the weakened physical condition of some individuals as a result of not eating enough.

Other physiological-psychosomatic disturbances reported covered a wide range from skin disorders to bowel and bladder disturbances and coronary-circulatory disorders. They were not experienced by many people. At least, they were not reported by more than a few individuals in our sample.

As in the case of protracted physiological-psychosomatic reactions, large number of individuals reported affective disturbances (see Table 4-39). The proportion for both impact and non-impact individuals is about the same as reported for physiological-psychosomatic reactions, although this does not necessarily mean the same individuals are involved. The high percentage involved in both, however, does clearly indicate a considerable overlap.

Table 4-39

PSYCHOLOGICAL DISTURBANCES: MAINLY AFFECTIVE

Nature of Disturbance	Percent of All Persons In	
	Impact	Non-Impact
Nervousness, excitability, hypersensitivity to non-storm stimuli	49	25
Hypersensitivity to storm cues	32	20
Anxiety dreams, nightmares, etc.	18	10
"Shocked," "went around in daze," etc.	14	1
Depressed, feeling "blue," "low," etc.	9	4
Anxiety (no object noted)	2	3
Irritability, low frustration tolerance	1	~
Other affective psychological disturbances not classified above	4	1
Denial of any affective psychological disturbance	21	23
No affective psychological disturbance reported	17	37
Number of Interviews	139	158

A much greater hypersensitivity to stimuli (both non-storm stimuli and storm cues) was the most common affective symptom reported. This hypersensitivity to non-storm stimuli took various forms, some of them of a rather vague nature, being verbalized only in terms of "nervousness" or "excitability." As one respondent phrased it:

> I am still nervous, just the least noise--I just, it just goes all over me. Just the least little bit of unexpected noise, and ah, it just gets me all out of whack. (Case R-302, p. 58)

Other respondents stated it as follows:

> It's just terrible...I just couldn't get my nerves back and it seemed like it just, oh, just tore every nerve you had in you, just tore apart. (Case R-322, p. 26)

> I've been kinda nervous and scary afterwards. (Case R-246, p. 32)

Nearly half of the impact respondents reported such general forms of nervousness. Increased sensitivity to storm cues was reported by about a third of all the individuals in impact. This figure does not include people who were already afraid of storms. It refers only to those who stated they acquired a new sensitivity or became much more alert to storm cues than they were before. Comments in this connection went as follows:

> The last two or three days that have been rather stormy and cloudy looking, I have been just a little bit jittery and nervous, but I never had before. (Case R-342, p. 12)

> It seems like I watch clouds if it's cloudy or anything. And the weather report I listen to that all the time, why, where I used to never pay any attention to it. (Case R-118, p. 33)

> Come up a cloud, something like that, oh, get a little nervous. (Case R-346, p. 9)

> I know I have a little more of feeling of doubt now when I see a cloud than I used to. (Case R-150, p. 12)

Nearly a fifth of all impact respondents reported anxiety dreams or nightmares. As might be expected, the content of many of the dreams had to do with the tornado. The following are some of the dreams reported by respondents:

> Well, I couldn't recall just what the dreams were all about, but I woke up several times and I'd be dreaming about it--something that happened. I'd be thinking I was somewhere, trying to get somewhere else. Seemed like I couldn't get there...I'd dream that somebody was calling for me and I was trying to get to them...it would wake me up. (Case R-193, p. 42)

> I dreamed the world had sunk...I had a little store and I had a hard way to get back on. I thought I was so tired. I thought that the poor little place was making ready to go down. And I started out again. And I thought it was a bunch of people was there. And all of 'em were strange people.

> And they was sitting around on logs and things like that. And I said, I wonder why all those people were sitting. I never saw them before. So many people in one little place before. So when I did make it home I was so tired. Had some wienies for the kids and I just thought if I'd lift them over to them.../told them/ help yo'self. Your mother's really tired.../then woke up/. (Case R-172, p. 2)

There are some indications that those individuals who had much to do with the dead and injured were especially affected in their dream life. This is illustrated in the following remarks by two respondents, the first of whom held a badly hurt little girl in her arms for quite some time, the second by a man who handled a number of dead bodies.

> I had nightmares. I saw a little girl dead and I thought she had hold of my hand. I thought there was a storm and she had ahold of my hand trying to lead me away from the storm. She was crippled and she was helping me and she was walking and would lead me. And she was scared of the storm. But I was thrilled to death of her walking and talking...I woke up out here in the grave yard, besides my daughter's grave. I had my shoes on but I didn't have any dress on. That's where I woke up. I don't know how long I'd been here or anything about it. I never done anything like that before. I never even had a dream like that. (Case S-061, pp. 32-33)

> You lay there, stretch out to rest a few minutes and you could see bodies, dead bodies all over the ceiling of the house and every place, laying as thick as they could be laying. (Case R-354, p. 18)

Other affective disturbances reported included feelings of deep depression, irritability, diffuse anxieties, "dazed" feelings, etc. No more than 14 percent of the respondents reported any one of these, and for most the reactions, the proportion who experienced them was quite low. There probably is, moreover, some overlap in these categories with the consequence, that what was essentially one reaction may have been coded twice.

Even more individuals reported cognitive psychological disturbances than reported affective psychological disturbances. About three-quarters of the impact and about half of the non-impact respondents stated they experienced such cognitive psychological reactions. The specific disturbances experienced are given in Table 4-40.

As might be expected, substantial number of respondents reported they thought about the storm that had passed. In many instances of individuals who had gone through the tornado, this thinking took the form of reliving the experience. For some individuals this proved very disturbing. As one of them said:

> For a while didn't even want to think anything about it. Didn't want to think about it, and I get to thinking about

it, and just simply almost get hysterical...cause I'd get to thinking about it, thinking how awful it was, and what I had to go through. (Case R-302, p. 50)

Table 4-40

PSYCHOLOGICAL DISTURBANCES: MAINLY COGNITIVE

Nature of Disturbance	Percent of All Persons In	
	Impact	Non-Impact
Thinking about the storm	45	39
Inability to concentrate	37	22
Forgetfulness	21	1
Reduced capacity for work (occupational or domestic) because of symptoms (respondent himself makes the connection)	17	13
Thinking about the possibilities of new storm	7	5
Tries to refrain from thinking about past storm but unable to stop—thinking has an "obsessive" quality	5	2
Inability to work (occupational or domestic) because of symptoms (respondent himself makes the connection)	2	3
Any other cognitive-perceptive disturbances (e.g., occasional hallucinations, etc.)	2	—
Denial of any cognitive psychological disturbance	9	18
No cognitive psychological disturbance reported	19	31
Number of Interviews	139	158

Another respondent said:

> Oh Lord, that is all I do think about...I can just see that wall coming apart and them windows coming in. (Case R-146, p. 52)

In the instance, of many non-impact respondents, the thinking about the tornado was of what might have happened to them if it had struck in their area. As one individual put it:

> That's almost daily in my thoughts...thanks that we were fortunate to escape here. (Case R-342, p. 2)

Other individuals thought of the storm in more general terms. As one respondent reported:

(What do you think about?) Well, ever since the storm it's just the storm and the worry and our homes and everything being gone and everything like it is. Our town tore up and the people that are torn up. That's just about all we can think about any more. (Case R-359, p. 21)

Inability to concentrate and forgetfulness were reactions reported by a substantial proportion of respondents. However, while these two cognitive disturbances were separately classified, it is very probable that in many instances, reference is to the same general kind of reaction.

Remarks illustrating these reactions were as follows:

I've never been so forgetful in my life as I am now... just making little mistakes. I'd go to town after town and get there and forget what I want. I'd go down to my house especially to get something and then when I get down there I couldn't remember what I came after. I'm having a lot of trouble like that. (Case R-167, pp. 23, 24)

I can't tell you one minute what I did the last hardly. (Case R-130, p.9)

Half the time I can't keep my mind on what I'm supposed to do. (Case R-154, p. 11)

I couldn't concentrate on one thing. (Case R-230, p. 9)

I didn't have any interest in anything else. I couldn't get my mind on it. (Case E-118, p. 31)

Couldn't get interested in anything. Couldn't settle down and want to do anything. (Case R-346, p. 33)

Other respondents reported a reduced or total incapacity to work because of some psychological symptom. That is, the respondent himself made the connection between his inability to return either to domestic or occupational work and inability to concentrate, constant reliving of the storm experience, etc. As one respondent said:

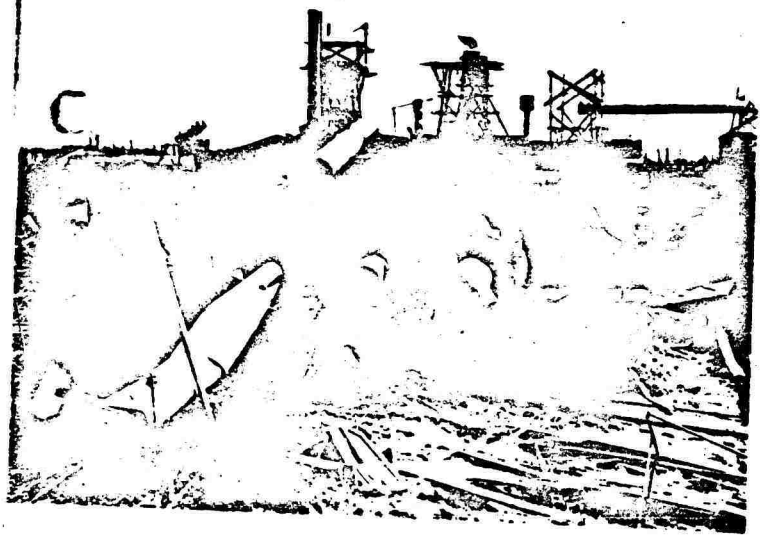
It hit you very hard...was bearing on your mind... couldn't settle down and want to do anything. (Case R-246, p. 33)

Other cognitive disturbances were not reported by any great proportion of respondents. A few individuals remarked that they thought rather persistently about the possibilities of a new storm. A few others stated that their thinking about the past storm was assuming an "obsessive" nature--they had deliberately made a major effort to stop thinking about the storm but had been unable to stop. A very few respondents reported experiencing occasional

hallucinations, e.g., hearing a train whistle and then discovering they could not possibly have heard a train.

All of the reactions, be they physiological, psychosomatic, or psychological, were consistently reported by a higher proportion of impact than non-impact respondents. This is what is to be expected. Individuals who were directly involved in the tornado should, in general, show greater reactions to the experience than those persons who were not directly involved. However, a relatively high proportion of non-impact respondents did report similar reactions to those experienced by individuals in impact. This strongly suggests that physical involvement in a disaster is not necessary for the development of certain typical disaster reactions. Psychological involvement is enough. The more closely an individual is identified with disaster victims, the more likely he is to exhibit the reactions discussed in this section. This pattern of behavior has previously appeared in all of the other National Opinion Research Studies and the evidence in this study is all in the same direction. However, although the general pattern of a relationship between involvement and the mentioned reactions is fairly clear, determining specific relationships would require considerable additional study--i.e., to establish a relationship between the nature (kind and degree) of involvement and specific reactions would probably necessitate intensive case-study analysis of particular individuals.

Further aspects of the gross relationship between involvement and physiological-psychosomatic-psychological reactions are discussed in Chapter IX.



DONIPHAN





Changes in Knowledge, Values, and Social Relationships

A varying number of respondents reported changes in knowledge, values, and in their relationships with other people. However, most persons are probably not too aware of changes that have occurred particularly in values and social relationships. Consequently, there is probably a selective bias here in terms of respondents who are more aware of changes than other people. The result is that most of the following figures have to be taken with a great deal of caution.

Changes in Knowledge of or Attitudes Toward Tornadoes

As shown in Table 4-41, many respondents reported learning things from their experience which led them to plan for future threats. It is true that about a quarter of the impact and about a fifth of the non-impact respondents reported that they learned nothing or were not going to do anything different in a future similar experience. However, it should be observed that some of the people who reported this, had also taken very complex and adaptive precautionary and protective actions prior to and during impact. In one sense then, there was little for them to learn as far as a future tornado was concerned. They had already acted in ways that objectively and subjectively seemed rather appropriate to the situation.

Table 4-41

WHAT RESPONDENT LEARNED FROM THE EXPERIENCE AND PLANS FOR FUTURE THREATS

Content of Knowledge	Percent of All Persons	
	In Impact	Not In Impact
Learned storm cellar is the ultimate safety, will go to storm cellar next time	28	13
Intends to or is building storm cellar (or would build one if could afford it)	15	6
Learned appropriate precautionary and protective actions which will take next time	20	22
Learned what NOT to do, will not do certain things next time, e.g., running outside	9	7
Learned signs of a tornado, will be on lookout for warning signs	10	11
Learned something, will act differently next time but no details given	6	10
Religious learning: learned to place self in hands of God	3	1
Religious fatalism: nothing can be done, it's up to God	4	2
Didn't learn anything, wouldn't do anything different next time, etc.	25	21
Number of Interviews	139	158

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Didn't learn anything, wouldn't do anything different next time, etc.	25	21
Number of Interviews	139	158

Varying proportions of respondents stated that they had learned certain appropriate precautionary-protective actions, or had learned that the storm cellar was the ultimate safety, or had learned what not to do next time, etc. Illustrative of remarks made in this connection were as follows:

> I believe now if a fella had a hole in the ground he'd go crawl in it if it got to lookin' pretty bad. I swear he would. I know I could. (Case R-346, p. 25)

> I imagine when it thunders now I'll just hide in a safe place. (Case R-154, p. 22)

> Have my coat handy and go to the storm cellar if it got close enough. (Case R-246, p. 32)

> If there was a storm cellar, I'd go in instead of staying in the house. (Case R-310, p. 22)

> But get under something heavy is the main thing. That's what I'd suggest a person if they didn't have time to get out and get to a storm cellar somewhere. Cause that's all I'd ever think of myself. (Case R-298, p. 18)

> I believe I'd remember to wrap up and put on an overcoat. If we had been pinned in under the house under part of the wall, if it had turned cold and we'd been pinned there for a day or two, we'd nearly freeze if we didn't have on a lot of clothes. (Case R-250, pp. 15, 16)

However, whether any of the individuals who stated they learned something would actually react in another tornado on the basis of what they said they learned in this experience, is a moot question. In this connection, attention should be drawn to the discussion of the effect of previous experience on the behavior of individuals in this tornado. (See Chapter VI)

A very few respondents took a rather fatalistic attitude about doing anything or planning for the future. As one of them said to an interviewer:

> Woman, if your gonna be killed, your gonna be killed anywhere. (Case R-326, p. 15)

Still another respondent said:

> I just feel this way. If it's going to get you, it'll get you where you're at. I don't believe you can run from them anywhere. (Case R-098, p. 34)

A few individuals were planning to build or were in the process of building storm cellars or, as one respondent put it:

> Yeah, I think if I can [I'll] build me a 'fraid hole. (Case R-130, p. 11)

That so few respondents were going to get themselves a storm cellar is of interest. There were relatively few storm cellars in this area prior to the tornado and over a quarter of the respondents had stated they had learned that a storm cellar was the ultimate safety. Yet only a few such individuals took or were going to take steps to build a cellar.

How many storm cellars were actually built in this area we, of course, do not know. A newspaper account about the area written a year after the tornado stated that many new storm cellars had been built but no specific figures were given.[1] Therefore, we could not evaluate this report in terms of our previous knowledge about the number of existing storm cellars in the area at the time of the 1952 tornado.

As the figures in the table show, that except with reference to a storm cellar—seeing it as the ultimate safety or expressing an intention of building one—there was little difference between what the impact and non-impact respondents learned. This would imply that undergoing the tornado experience itself, may not be the only relevant factor in what a person learned about proper behavior in such a situation.

Changes in Values

As can be seen from Table 4-42, a considerably smaller proportion of respondents reported any changes in their values than reported learning something as a result of their storm experience. However, as already noted, reports about this area of personal life have to be accepted with a great deal of caution. The best that probably can be said, is that most of our respondents did not feel or believe that they had changed their basic values. Whether they actually did or not could only be established through more intensive and longer-range studies.

Table 4-42

CHANGES IN VALUES

Nature of Change in Values	Percent of All Persons In Impact	Percent of All Persons Not In Impact
Strengthening or confirmation of religious values already held	21	20
Return to religious values from which respondent feels he had strayed	2	—
Less materialistic in outlook now	5	2
Confirmation of non-religious fatalism or increasingly fatalistic attitude toward life	1	3
Now attaches more importance to community cooperation, mutual aid, etc.	11	7
Denial of any changes in values	44	34
Nature of change in values unreported	19	33
Number of interviews	139	158

[1] The Arkansas Gazette, February 8, 1953, p. 6.

Such changes as were reported seemed to have been in religious and philosophical values. About a fifth of all respondents reported a strengthening or confirmation of religious values already held. Given the strongly religious orientation of most of the people of this area, this is not surprising. Equally as expected, is the fact that only two percent of the impact cases reported a return to religious values from which the individual had strayed. It is clear that, in these communities, it was not a question of returning to religion but of feeling it more strongly. As several respondents noted:

> The only thing I feel like has changed is just you live better. Try to live the Lord better, more, all the time. That is the only thing. Course there isn't anything else that has changed in my mind any. I just like to live better for Him all the time. (Case R-122, p. 36)

> It has brought to me, more than ever, a realization. I have always tried to live Christian but it has brought to me the realization of the need to be prepared for death. We know not what minute it will come and we should all try to be ready when a thing like this does happen. (Case R-342, p. 23)

> I believe I think more of my Lord than I did. (Case R-314, p. 35)

> Now I read the Bible more than what I did. (Case R-098, p. 34)

Interviews conducted with various ministers in the different towns gave evidence of the same kind as reported by regular respondents. The ministers, almost without exception, reported no upsurge of conversions, but did report some increases in church attendance.[1]

Relatively few respondents reported attaching more personal importance to community cooperation. Several individuals commented about this as follows:

> Most people you wouldn't have thought would be out doing things, you'd see them about doing things. Makes you feel closer to them. (Case R-246, p. 36)

> I feel like they feel. More like helping someone than... did before that happen. I think that would be all over the town and all over the area around here. (Case R-118, p. 35)

However, the low proportion of respondents who attached more personal importance to community cooperation may not be truly indicative of the feeling that existed immediately after impact. It is possible a time factor was at work here. There is some indication in the interviews that the sense of social solidarity and the general feeling of community goodwill was strongest in the days right after the tornado.

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[1] Reports from various denominations differed rather widely in regard to the amount of increase of attendance they experienced.

Changes in Social Relationships

Relatively few respondents reported changes in their relationships with other persons. As shown in Table 4-43, almost all the reported changes were in the direction of a strengthening of a relationship previously existing with kin, neighbors, or friends. Respondents reported such changes as follows:

> (Have you gotten to know anybody better since the tornado?) Oh, yes, the folks this house belongs to, why I've known them a long time, ever since they've lived here, six years right beside 'em. But I didn't know them too well, you know. They've been just like a mother and dad to me. (Case R-316, p. 24)

> I've met folks. I knew of them just when I seen them but after working and being with them, naturally understand them better, well acquainted. (Case R-334, p. 33)

> People I met. Had been several years since I had been around them much. See them quite a bit more than before, now. (Case R-312, p. 9)

All other changes in social relationships (including the formation of new ones) were reported by very few people. No one reported (as a result of the tornado) breaking off a relationship with a person previously known

Table 4-43

CHANGES IN SOCIAL RELATIONSHIPS

Nature of Change in Social Relationships	Percent of All Persons In Impact	Percent of All Persons Not In Impact
Relationships strengthened with kin, neighbors and friends	16	12
Relationships strengthened with other townspeople (not in formal roles)	3	2
New relationships formed with people in own community not formerly known	4	1
New relationships formed with people in nearby communities not formerly known	2	3
New relationships formed with persons associated with formal relief, control, etc., agencies from outside White County	2	1
Relationships broken or weakened with anyone previously known	—	—
No social relationships strengthened, formed or weakened	77	84
Number of Interviews	139	158

Observations of Personal and Social Change

Respondents made many observations about the changes they saw (or thought they saw) going on around them. The range of observations was enormous, but unfortunately there was relatively little overlap in the comments of the various respondents. However, on the basis of importance and the presence of enough comparative data, three areas were selected for attention. These areas were:—(1) how respondents perceived people had changed in general since the storm; (2) what respondents observed about the reactions of children to the experience; and (3) what respondents believed was being done with respect to community rebuilding.

As shown in Table 4-44, most of the changes perceived in other people were of a positive rather than negative nature.

Of the positive changes, the one most frequently mentioned (by both impact and non-impact respondents) was that people were more friendly, considerate, etc. In this connection respondents expressed themselves as follows:

> People that are cold are more friendly, probably than they ever were before in their lives. Just act like everytime they speak to somebody they sure was proud [i.e., glad] to see you. I guess they thought they was proud to see you was alive or something. (Case B-346, p. 18)

Table 4-44
HOW RESPONDENT PERCEIVED PEOPLE HAD CHANGED SINCE THE TORNADO

	Percent of All Persons In	
	Impact	Non-Impact
Positive Changes		
More friendly, cooperative, greater solidarity, more considerate, kinder, etc.	37	19
More religious, better Christians, had greater faith, etc.	12	16
Held up well in adversity, showed greater strength of character than respondent expected	5	2
People are "better" and other vague expressions about "betterment"	4	2
More subdued, restrained, less wild, quieter, sobered, etc.	1	3
Negative Changes		
People have not changed but they should have—just as wicked as before, etc.	4	3
People are not holding up well in adversity	1	—
Less friendly, more selfish, egotistical, less cooperative, etc.	1	—
No positive or negative changes perceived	47	65
Number of Interviews	139	158

> Everyone seems more friendly, seems to care more about each other than they did. (Case B-334, p. 33)

> I believe that most of us can go and help and do what we can and things like that. I really don't think we could before. You probably never know unless anyone really has the experience to try to help. (Case B-246, p. 37)

It should be noted that some people who expressed such sentiments felt that it was a temporary phenomena. They expressed an opinion that the feeling of mutual good-will would not last.

Relatively fewer respondents reported people had become more religious, better Christians, etc. Those that did expressed it somewhat like the following:

> More of the people, seem like, feel more or less just like I do about it. They look more to Christ than they did. They feel they've been taken care of just like my family. Lot of them did things before the storm that they won't do now. They used to have a little crap game around once in a while. I don't believe I've seen a man who was in the storm in a crap game. They are all more or less leading a better life. (Case B-314, p. 36)

> I knew we did have some people that have not been attending church, that has come out to church. (Case B-230, p. 21)

> They're having the revival services in town and people are attending...I think it's waked so many up as to what Christianity is and what it has meant at a time like this and...people are thinking more of that than they have since the tornado struck. (Case B-342, p. 22)

A few of the respondents although they noted that people were more religious expressed considerable scepticism that the change in attitude was a permanent one. As one of them said:

> You take any disaster like that and right at the time they go to church. And they say they are going to do better but they aren't going to stick with it. (Case B-110, p. 9)

Another respondent expressed her scepticism as follows:

> You hear them talking about they're gonna do better [i.e., go to church more, etc.]. Don't know if that is just street talk. We can tell later. (Case B-334, p. 7)

A comparison of impact and non-impact cases shows a possible meaningful difference in only one respect. Just about twice as many impact as non-impact respondents reported they perceived people as more friendly, considerate, co-operative, etc. Several factors may be responsible for this. For one, there probably was a higher sense of community solidarity in the impact areas as a

result of the common experience of having gone through the tornado. Under these conditions, it would be expected that people would see each other in a friendlier light than in areas where there was less of a sense of community solidarity. Furthermore, individuals in the impact areas may actually be more friendly, considerate, etc. with one another than persons in the other areas.

> When people are needy and need help, you know they are inclined to be more friendly. (Case B-138, p. 29)

The slight but nevertheless positive changes in social relationships discussed in the previous section, also suggest that people were actually more friendly with one another.

Reactions of Children

Table 4-45 presents the direct observations of children made by adults.[1]

Table 4-45

RESPONDENT'S DIRECT PERCEPTION OF CHILDREN AFTER THE TORNADO NIGHT

Nature of Perception	Percent of All Persons In	
	Impact	Non-Impact
Shows anxiety regarding future tornadoes	16	5
Illness: colds, measles, flu, etc.	10	3
Sleep disturbance and nightmares	6	—
Eating disturbance	6	—
Nervous, frightened, scared, jittery (regarding tornado past)	6	2
Child unaffected	6	13
Increased dependence on or great responsiveness to adults	4	4
Talks about the tornado a great deal	1	4
All other observations	4	3
No children perceived or reactions of children unreported	65	74
Number of Interviews	139	158

More respondents in impact areas reported children were disturbed than did respondents from non-impact areas. (Approximately 29 percent compared with 13 percent.) Unfortunately, however, it was impossible to separate the observations in terms of those that were made of children who had undergone impact and of those who had not. Very often, the respondent himself did not know. Consequently, the slight evidence that appears in an areal comparison cannot be fully

[1] Since test coding indicated little difference in observations reported about one's own children and the children of others, no distinction is here made between the respondent's observations of his own children and other children.

relied upon. The general impression from the only available evidence we have (and it can be only very tentatively advanced) is that children who underwent the actual tornado experience were more disturbed than children who did not.

As for specific reactions of children, respondents typically commented upon them in the following ways:

> Oh, the kids didn't seem to know much. They just played on just the same. (Case R-110, p. 10)

> And then the oldest boy of mine...I had to sit and talk to him for a long time and try to calm him down. He said, 'Mother, I don't believe I'll ever forget that, that begging by these people that were hurt, begging for help, that begging for them to relieve the pain and everything.' He said, 'I don't believe I'll ever forgot that as long as I live.' It kinda bothered me a bit--as young as he was--saying he would never get it off his mind. (Case R-123, p. 14)

> My children...they are all nervous and scared...they are still scared of what might happen. There is a fear that there might be another one...the one next to the baby doesn't sleep well at all... last night her little upper lip got all swollen up. (Case R-128 p. 12)

> They [i.e., the children] haven't been sick...but they get nervous at night. When night comes they seem to be in a nervous state, fear of going to bed...Mary wants to just stay close to us, wants me to sleep with her. (Case R-137, p. 26)

> Children are still afraid. One of the kids don't want to go to bed unless the others goes to bed with them...He'll go upstairs and he'll holler from the stairway and whenever he starts down he wants her [child's mother] to talk to him till he gets down...and when it gets dark now he wants to know if he hears a racket, he wants to know if it's a storm. (Case R-144, pp. 18, 19)

> (What about your little boy?)...He just seemed kind of dazed. He didn't say or do nothing much until a day or two after I was out of the hospital. Taken on a spell of crying and fretting and aggravating. And wouldn't do anything we'd ask him to do. So finally his daddy sat down and he said, 'Well, now, son, I just want to know what ails you?' 'Oh, I don't know, nothing to do, nowhere to go and I just wish I'd a-died.'...He just had us really upset...Gradually begin back a little like he did beforehand... he's acted lots better [since]. Case R-303, pp. 38, 39)

> He [brother] has three little boys. They didn't seem to bother a thing. Just as calm as they always was seems like. (Case R-238, p. 18)

> They were nervous for a night or two, couldn't sleep. (Case R-334, p. 9)

> The boy...I didn't notice any difference in him. (Case R-302, p. 59)

At any rate, it is clear from the interviews and from the direct observations of interviewers that children like adults varied considerably in their post-impact reactions. Often two children in the same family evidenced quite different reactions--one seemingly not being affected to any great degree, another apparently very disturbed. So far as can be determined from the interviews, the reactions of children in the post-impact period presented no particular problems to the adults involved. Only a very few respondents appeared to notice any particular reactions on the part of children, or expressed any concern or worry over what they observed.

It should be noted, however, that our other field studies in which children were interviewed, throw some doubt on the reliability of adult observations of children.[1] Some gross misinterpretations were found. This would seem to indicate that, in order to obtain valid and reliable data on children's reactions, it would be necessary to interview children directly rather than depending on the observations of adults.

Intention to Rebuild

We now turn to the opinions of respondents on whether the hit communities were or were not going to be rebuilt. Since it was frequently impossible to distinguish the particular locality referred to by a respondent (i.e., whether he was referring to Judsonia, Doniphan, etc.) the opinions expressed were coded as referring to rebuilding in the impact area in general. In the impact cases, however, it is probable that the referent is usually the respondent's own community. Most of the non-impact cases probably refer to Judsonia.

As shown in Table 4-16, most of those individuals who ventured a remark on rebuilding, thought people were going to rebuild. Respondents expressed themselves as follows about what they thought people were going to do.

> I think people that can will put back and try to be the same, just have a little town here again. (Case R-216, p. 35)

> So many are just ready to start right in and rebuild. (Case R-138, p. 22)

> The people of this town seem to have great fortitude and ability to carry on, which is in evident now in the fast rebuilding pace. (Case R-150, p. 11)

Some respondents qualified their remarks about Judsonia indicating that it would be rebuilding but by different people (newcomers) or the town would be located in a different site (e.g., closer to the highway). As one respondent said:

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[1] See Volume III, Appendices B-1, B-2, and B-7.

> So if they rebuild I imagine it will be out toward the main highway more. But eventually I believe Judsonia will be a thriving little strawberry center and community again. (Case R-342, p. 23)

Still another respondant thought that the business area of Judsonia would not be rebuilt as much as the rest of the town would be. One respondent put it this way:

> I don't believe some of the business men, I don't think will build back. And a lot of the business buildings were owned by out-of-town people, I understand they aren't going to build back, they were just renting the buildings. I think the residents will. Some people had residences destroyed, probably wouldn't build back, but they'll probably sell those lots to someone else and I think the town will be built back. (Case R-250, p. 14)

This last quotation, according to word received in May of 1954,[1] was borne out by events. The town, on the whole, has been rebuilt but many of the businesses had not attempted to re-establish themselves.

Only a very few respondents felt that there was not going to be any attempt at rebuilding. One individual who did feel this way expressed himself as follows:

> There's gonna be a lot of the people that was there that won't be there any more. And they'll never be there any more. And there's a lot of people that was there and got away from there that won't want to live there. (Case R-302, p. 72)

Table 4-46

RESPONDENT'S OPINION ABOUT WHETHER TOWNSPEOPLE WILL REBUILD*

Nature of Opinion	Percent of All Persons In	
	Impact	Non-Impact
Majority will rebuild	24	16
Majority will rebuild and town will be better than before	6	—
Majority will rebuild and town will be worse than before	4	—
Town will be rebuilt but by different people (newcomers) and/or it will be located in a different site (e.g., closer to the highway)	4	1
Don't know as yet what people will do	14	10
None or very few will rebuild	8	1
Opinion on rebuilding not reported	40	72
Number of Interviews	139	158

* About 11% of all the respondents in the impact areas ventured some remarks on the rebuilding of the business community as over against the residential areas. Because of the low frequencies involved and the lack of any strong opinions one way or the other the results are not reported here.

[1] From a telephone conversation with the editor of the Searcy newspaper.

Very few respondents said that their own rebuilding plans were dependent on what other people were going to do. In fact, as shown in Table 4-47, of the respondents who expressed a view on the subject, over two-thirds of them were already in the process of rebuilding, or definitely had made up their minds that they were going to rebuild their homes. However, a fairly substantial number of the individuals in the impact areas, about 28 percent of them, were still, at the time when they were interviewed, undecided or ambivalent about what they were going to do. Most of these persons said their decision was going to depend on how much aid they would be able to obtain. Very few individuals stated that they were not going to rebuild.

Table 4-47

RESPONDENT'S OWN PLAN REGARDING REBUILDING

Nature of Plan	Percent of All Persons In Impact
Will rebuild	39
Already has begun rebuilding or making major repairs on house	29
Undecided or ambivalent: decision dependent on aid obtained	19
Undecided or ambivalent: reasons unspecified	9
Probably will not rebuild	1
Definitely will not rebuild	3
Number of Interviews	75

Apparently many of those who were undecided about rebuilding were waiting to see how much the Red Cross was going to help them. There seemed to be considerable confusion and lack of information among our respondents on this point. However, this was to be somewhat expected since the Red Cross was only starting to consider rebuilding aid when our field study was ending. The organization had not yet had time to decide whom it was going to help rebuild and to what extent. At any rate, this left a number of individuals in the same state of indecision as the respondent who reported:

> ...Haven't made any specific plans, because I don't know what I can do yet. It remains to be seen. The Red Cross hasn't made any particular promise as to what they will do and what they won't do. So I don't know. (Case R-130, p. 3)

Most of the few individuals who stated that they were not going to rebuild, appeared to be people who were, prior to the tornado, dissatisfied with where they were living. The wrecking of their living quarters merely gave them a good opportunity to leave. Several respondents expressed it this way:

> I'll go cause I never did like Bald Knob, lived here for 27 years, but I never liked it. I don't like the way the people does here. (Case R-106, p. 36)

> In fact I have been wanting to get away for a long time because I just wasn't very well satisfied, just don't want there and I don't even want close. I just want to get entirely out of the state. (Case R-154, p. 19)

Evaluation of Experience

Within a few days after the tornado, individuals began to look back and evaluate their experience. They reminisced about what they had gone through and they talked over and compared their experiences with their friends and relatives. In looking back, respondents singled out certain general aspects of the tornado experience as the worst or the most upsetting. As shown in Table 4-48, they did not overwhelmingly select out any one general aspect as most upsetting. "Pitiful" consequences to disaster victims or survivors, which was ranked highest, was singled out by about one-fifth of all the impact respondents, and by a slightly larger proportion of the non-impact respondents. The relatively slight differences in several categories between the impact and non-impact population, seem due to the fact that individuals that were in impact tended more often to select (as might be expected) either the tornado itself or the entire disaster as an undifferentiated experience.

Table 4-48

WORST OR MOST UPSETTING GENERALIZED ASPECT OF THE EXPERIENCE

Nature of Worst Aspect	Percent of All Persons In	
	Impact	Non-Impact
"Pitiful" consequences to disaster victims or survivors	22	29
Large number of persons killed or injured	19	33
The entire disaster--as an undifferentiated experience	14	6
Overall destruction--emphasis on extensiveness of destruction to property	12	16
The tornado itself (its great power, frightening character, etc.)	11	2
Nature of the deaths and injuries (emphasis on maiming, bleeding, etc.)	2	1
Denial a ything was upsetting	1	4
Other aspects	1	4
No worst or upsetting experience, or none reported	31	32
Number of Interviews	139	158

Respondents expressed themselves about the worst or most disturbing general aspects of the tornado in the following ways:

> (As you see it, what was the worst thing about the storm?) Of course the loss of life and the broken homes was the worst thing. (Case B-342, p. 22)

> I would say that the death of the people was much worse than any other thing. (Case B-118, p. 34)

> Oh, you just couldn't hardly stand to even think about what those poor people, you know, that got killed, and their families that were still living. What they were going through, you know. For me is when you see folks killed. Property can be replaced, but you can't replace their lives. (Case B-334, p. 30)

> (What do you think, what was the worst thing about the storm?) Well, I think the people that got killed. All this property damage is awful bad but still that isn't like losing lives, you know. (Case B-305, p. 52)

> I really don't care about hearing too much about people getting blowed away and cut in pieces and all that stuff. (Case B-110, p. 4)

> (What would you say was the worst thing about the storm?) ...People losing their lives. (Case B-122, p. 35)

In Table 4-49, instead of the generalized aspect, the specific event of happening[1] which was most upsetting or worst, is tabulated. Although a distinction between general and specific was sometimes difficult to make, it was felt that such a distinction would be meaningful especially since respondents themselves frequently separated the two.

As might be expected, considerably more impact than non-impact respondents selected out specific events or happenings as the most upsetting or worst. This, of course, reflects the lesser involvement of the non-impact cases in the tornado experience.

Respondents expressed themselves about the worst or most disturbing specific event or happening of the tornado in the following ways:

> Worse thing, it tore up lot of my furniture, I guess. Knocked me out of a place to live. That's about the worst thing I had. (Case B-316, p. 22)

> I think what is still going on is the worst part. I wouldn't know exactly how to describe the thing.... You are just all tore up and no place to live. (Case B-154, pp. 21, 22)

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[1] A few respondents selected out more than one event or happening.

Table 4-19

WORST OR MOST UPSETTING SPECIFIC EVENT OR HAPPENING

Nature of Event	Percent of All Persons In	
	Impact	Non-Impact
Physical effects of the tornado itself	30	5
Property loss to self or household kin	18	4
Narrow escape of self or household kin	16	3
Consequences to self or kin of death, injuries or property losses	12	—
Not knowing what happened to kin or intimate	9	8
Death or injuries to kin	4	1
Manner of particular other being killed or injured	1	2
Consequences to particular others of death, injuries or property loss	1	2
Death or injuries to intimates or particular known others	1	7
Own injury	1	—
Property loss to non-household kin or intimates	—	2
Other aspects	12	9
No worst or upsetting experience, or none reported	19	60
Number of Interviews	139	158

Well, at the beginning, my wife was badly injured. That was about the worst upset I had. (Case R-130, p. 11)

The D's...just beared on my mind more than anything, Just because I had one child. They were in the store and little boy was home and something killed him. As horrible as any [thing else]. (Case R-238, p. 16)

The worst part that happened to me was after it was all over... everything that I had was destroyed. (Case R-302, p. 71)

The worst it done to us, we had to have the house fixed. (Case R-310, p. 21)

[Worst thing] I guess would be the ones we loved both was killed...so terrible to walk in there and see caskets...have those two little kids grow up without their parents. (Case R-246, p. 25)

> I just imagine seeing that house going and knowing they were in it, I reckon that's what scared me the worst. (Case R-202, p. 32)

> Believe the issue of the home gone was the worst thing that happened to me. (Case R-130, p. 10)

It may be noted at this point that while searching for missing was a major activity and a prime source for anxiety in the hours after impact, in retrospect most respondents did not rank it high as the most upsetting event. Only about a tenth of both the impact and non-impact respondents reported it. Possibly the fact that most searchers found those they were looking for had not been killed or too seriously injured, may have been influential in diminishing the importance of this occurrence when it was viewed in retrospect.

Of interest is that fact that no respondent mentioned the mass funeral as a worst or upsetting event. In fact, it was barely commented on by any of the individuals in our sample. Certainly it did not loom large in the thinking of most people. Possibly the fact that the mass funeral actually involved only ten people who were buried in their own separate graves, made it seem more or less like an ordinary burial. Most of the few individuals who commented on the event, accepted it as a matter of necessity which was done with rather good taste. As several respondents said:

> They wasn't anything else could of been done more. They were put away nice. (Case R-236, p. 9)

> I think they put them away as nice as they could. Fixed them for burial just as nice as they could. (Case R-136, p. 31)

> One of the Protestant ministers preached the sermon for all ten of the ones that were being buried that day. And some of them were members of different churches, but it didn't seem like it mattered at a time like that, whether they had their own preacher to preach the funeral or not. (Case R-233, p. 21)

One respondent voiced a milk objection about the one ceremony for all the victims, but even she qualified her objection with the point that it had to be done that way. She stated:

> Just one sermon, you know, preached for all ten. It just didn't seem right that it should be done like that, but they had to because they didn't have time to have a separate ceremony for all of them. (Case R-132, p. 5)

The only strong objection voiced by several respondents was in connection with the fact that outsiders were allowed to take pictures while the funeral was going on. As one respondent commented:

> That mass funeral we had. They was up there a-making pictures of that mass funeral...I guess it's alright for

other people to see how it looks but I just don't think they ought to done it...I don't know whether they shoulda done it, whether they shouldn't of. It just seems to me like they shouldn't of let them take them pictures...I guess it's alright but it sure is pitiful especially for people that had...folks that was buried there. As far as them getting out there with them old movie cameras and stuff and snapping them pictures... I guess it's alright if they want to do that. There's not many people that liked it that was there. (Case H-209, pp. 35, 36)

General Feeling of Deprivation

Table 4-50 summarizes the overall sense of deprivation felt by the individuals in our sample. It also shows how individuals ranked their deprivations relative to other people.

Table 4-50

RESPONDENT'S OVERALL SENSE OF DEPRIVATION

Nature of Deprivation	Percent of All Persons In	
	Impact	Non-Impact
General Statement Regarding Degree Deprivation Felt		
Feeling of having suffered relatively great deprivation--as bad as it could have been	3	—
Feeling of having suffered great deprivation; no comparative statement	11	1
Feeling of having suffered some deprivation but not as much as could have been	54	7
Feeling of having suffered moderate or slight; no comparative statement	11	2
Feeling of having suffered no deprivation although some were objectively possible	9	27
Feeling of having suffered no deprivation at all; no comparative statement	1	48
Deprivations Relative to Others		
Felt self less deprived than others	46	32
Felt self about equally deprived as others	4	—
Felt self as more deprived than others	1	—
Identity of Others as Reference of Comparison		
Others in general	42	31
Particular known others but not kin or intimates	5	1
Kin or intimates	4	—
Number of Interviews	139	158

Very few impact respondents felt themselves as having suffered great deprivation. Only three percent of the impact individuals stated it was as bad as it could have been. About one-tenth of the respondents did say they had undergone great deprivations, although they did not specifically make a comparison with what they could have undergone. On the other hand, nearly two-thirds of the impact cases reported only that they had suffered moderate, slight, or some deprivation but not as much as could have been suffered. And one in every ten individuals that underwent impact reported no sense of deprivation at all. Thus, about three-quarters of the impact respondents felt that they had not suffered great deprivation.

Given the widespread destruction in the impact areas the proportion of individuals who felt they had suffered great deprivation, must be considered remarkably low. The content of the interviews and the field reports of the interviewers, leave little doubt that the majority of respondents felt only moderate or slight deprivation and not great deprivation. The expressions on this point were genuine and not merely tactful or polite.

It would appear that our respondents used two general standards to arrive at the position that they had not suffered great deprivation. They compared what did happen to them, with what possibly might have happened, or, they compared what they had to suffer, with what others had suffered. The most striking aspect of this whole process was that respondents were very selective in singling out possibilities or what had actually happened to others when they made their comparisons. The standard of possibility, of course, lent itself to any sort of comparison a respondent would want to make. No matter how much he had suffered, some worst possibility could always be assumed (e.g., he himself could have been killed). The standard of what actually happened to others was also quite flexible. A person who had suffered more than the respondent could almost always be found. Such a procedure, naturally, led many respondents to ignore the fact that many other individuals suffered much less than themselves.

Many individuals when talking about possibilities, stressed that they could have lost their own lives or a family member, rather than just their property. Typical expressions in this connection were as follows:

> It knocked the house off the block, and knocked a hole inside the wall and broke the windows out and taken the roof off you know...the house is still a-twisted like...I was just thankful it was the house instead of my family that was tore up. (Case B-310, p. 9)

> It tore up my furniture in my house. Other than that, I wasn't hurt at all. I can't complain about it because I didn't get a scratch and none of my folks did. I wouldn't care if I lost everything we had, we haven't got hurt. I'd rather lost everything we had than see one of us get hurt. (Case B-346, pp. 22, 23)

> What a blessing it was, you know, that we wasn't killed. We was spared and we did have our lives even if we didn't have material things. (Case B-302, p. 50)

Other respondents just stressed the fact that their lives were spared without making any reference to property. The following are remarks illustrative of such individuals:

> We got lots to be thankful for, you know, that we went through all that and didn't even get a scratch...A lot to be happy about and to think of that we was still together. Neither one of us was taken and we wasn't hurt. (Case R-206, pp. 3, 7)

> I am just awfully thankful that we're all here and none of us hurt more than what we were. (Case R-138, p. 10)

In contrast, other respondents merely noted that their property damage could have been much worse. Usually this was more implicit than explicit. These individuals did not particularly note that they might have lost their lives. Typical comment by such individuals went as follows:

> The house is still standing. It furnishes a dry covering in most parts of the building, outside the broken windows... but we're planning to rebuild it...our personal damage wasn't too heavy--wasn't too heavy. (Case R-150, pp. 10, 15)

> Well, it tipped it a little bit on the foundation...broke all rafters, there was a two by four run through the kitchen... timbers and broke the outside wall. Going to take quite bit of repairing to do that. But still, the house is in pretty good shape. I think we can fix it without too much trouble. (Case R-138, p. 9)

> Blowed part of the roof off this side and blowed one porch post out here and one over there and tore the swing down. It smashed the brick foundation...that one window, it didn't blow, it just pulled it out. No, it didn't do this house too much damage. (Case R-110, p. 6)

Respondents also frequently compared themselves with others. It would appear that this occurred somewhat less frequently than a comparison with possibilities. Thus, about two-thirds of the impact respondents noted what might have happened to them, whereas only about half of the impact respondents compared what they had suffered with what others had suffered. When a comparison was made with others, the reference of comparison was usually a generalized other--i.e., "they" or the community in general. Few respondents compared their deprivations with specific other individuals.

When a comparison was made with others, it usually was with reference to the fact that one's life was spared or no family member was killed. Typical remarks by respondents in this connection were as follows:

> You can think how thankful you are to have your family. Everyone that had a close call--to have not lost some of their family--they are really lucky. And we were one of the lucky ones. There wasn't any of my family killed. (Case R-362, p. 23)

> We knew we didn't have any home no more, but we was thankful we was still living. My daughter she's...12 years old said, 'Daddy, look at our house, we ain't got no home.' He said, 'Honey, don't study about us havin' a home, just so we're all together, that's all we care about, that we're saved there and we don't care if we got the home or not. Be thankful that we're all livin'—there's a-many and a-many of them that's not livin', there, all separated.' (Case B-209, p. 10)

> There were so many around here got hurt so bad—some killed—and we was just in a dangerous spot and got out lucky. Just a few bruises and cuts. (Case B-098, p. 29)

However, some respondents merely compared property losses without any explicit consideration of lives. Several respondents commented as follows:

> There was a lot of them worse off than I was, their houses were blown plumb away. (Case B-314, p. 17)

> We had as little a damage done to us as any house in town. Nothing to speak of, to compare with other people. (Case B-334, p. 8)

> I just felt like there was just a lot of hard work...to get it fixed back and then when I seen so many others that were so much worse off than my house, and not even there, I don't feel like I've had any damage—I was just fortunate. (Case B-202, p. 9)

A comparison of sense of deprivation between the impact and the non-impact respondents, brings forth the expected differences. As shown in Table 4-50, very few non-impact respondents felt they suffered any deprivation at all. About ten percent of them felt they had suffered some moderate or slight deprivations. It is probable that most of these individuals were those who lived on the periphery of the tornado-struck area, and who suffered slight damages to their houses.

Since the amount of destruction was not equal in the various communities and localities struck, an analysis of the overall sense of deprivation by area was made. The results are given in Table 4-51. None of the areal differences appear to be very significant. From this negative conclusion, it might be possible to infer that the degree of community-wide destruction, is not directly associated with the overall sense of deprivation felt.

Table 4-51

RESPONDENT'S OVERALL SENSE OF DEPRIVATION, BY IMPACT AREAS

Nature of Deprivation	All Impact Areas	Percent of All Respondents In Judsonia	Doniphan	Rural Judsonia
General Statement Regarding Degree of Deprivation Felt				
Feeling of having suffered relatively great deprivation--as bad as it could have been	3	2	6	4
Feeling of having suffered great deprivation; no comparative statement	11	9	12	14
Feeling of having suffered some deprivation but not as much as it could have been	54	56	53	43
Feeling of having suffered moderate or slight deprivation; no comparative statement	11	10	18	11
Feeling of having suffered no deprivation although some were objectively possible	9	9	—	18
Feeling of having suffered no deprivation at all; no comparative statement	1	1	—	—
Deprivations Relative to Others				
Felt self less deprived than others	46	51	29	43
Felt self about equally deprived as others	4	5	—	—
Felt self more deprived than others	1	—	—	4
Number of Interviews	139	86	17	28

Having considered how respondents evaluated what had befallen them, attention can now be directed to what respondents thought was responsible for what they had experienced. Or more specifically, what was responsible for the tornado? As Table 4-52 shows, a rather wide variety of answers were given. Generally speaking, naturalistic explanations predominated. However, there was a relatively substantial number of respondents who gave supernaturalistic explanations, who simply did not know what was responsible for the tornado, or who gave composite explanations embodying naturalistic, supernaturalistic, and fatalistic explanations. This range of answers, in part, may be due to the fact that respondents were giving considerably different interpretations to probes by interviewers as to what "caused" the tornado, "why were some houses hit harder than other," or "why was this place hit and not another," etc.

Impact and non-impact respondents differed somewhat in their causal explanation of the tornado. About 43 percent of the impact respondents as compared with 30 percent of the non-impact respondents gave a naturalistic or semi-naturalistic explanation for what had happened. In contrast, supernaturalistic explanations of various kinds were advanced by 24 percent of the individuals who were not in impact, compared with only 13 percent of the persons who had undergone impact. In short, while the non-impact population tended to attribute the tornado to supernaturalistic causes as much as naturalistic causes, the population that had gone through impact quite clearly attributed the tornado to natural rather than supernatural causes. Why there should be this difference is not altogether clear. However, it may be that those individuals who experienced the tornado had become more sensitized to information about tornadoes. Newspapers and the mass media in the days following the tornado, carried semi-technical discussions of tornadoes and their formation and development. If impact respondents had become more sensitized to information about tornadoes, they might have been very likely to note and remember such scientific material.

Table 4-52

CAUSAL EXPLANATION OF TORNADO ADVANCED BY RESPONDENTS

Nature of Explanation	Percent of All Persons In	
	Impact	Non-Impact
Naturalistic explanation	25	18
Naturalistic explanation but containing elements of animism or supernaturalism	18	12
Supernaturalistic explanation with punitive content: e.g., God punishing sinners	8	9
Supernaturalistic explanation without punitive content	5	15
Non-religious fatalistic explanation	3	3
Composite explanation utilizing elements of naturalistic, supernaturalistic and fatalistic explanations	16	11
Don't know (definite statement on part of respondent)	13	19
Causal explanation of tornadoes unreported	12	13
Number of Interviews	139	158

Of those individuals who gave naturalistic explanations of the tornado (and they comprised the largest proportion of all respondents) few gave completely scientific explanations of the tornado. That is, they did not explain the tornado in technical terms but rather in common-sense terms about the cloud rising and falling or whirling around, etc. Illustrative of naturalistic and semi-naturalistic explanations are the following:

> At times the wind is higher at one circle than at the other. Travels in a whirl. (Case R-334, p. 30)

> It seems to me the storm lifted in a few places and just played around, just like a big hand with fingers that just played up and down. (Case R-250, p. 11)

Respondents who voiced supernaturalistic explanations about the tornado sometime gave it a punitive content. That is, they saw the event as a sign or warning from God, or as a means God was using to punish the wicked. One individual who saw it as a warning express it this way:

> I really believe that He has shown the people what He can do. And according to the Bible, we ain't seen nothing yet. This is just a-starting. It's getting closer to the last day. (Case R-110, p. 10)

Other respondents who viewed the tornado in punitive supernaturalistic terms remarked as follows:

> The reason why the Lord permits these tornadoes in coming [is that] the world is got so wicked. He's a-trying to stir 'em up get 'em back to serve the Lord. (Case R-022, p. 15)

> I tell you one thing. The people now days have been shore wicked and been for years. And God Almighty is getting tired of these wicked ways. The people right here today is like they was when He destroyed the world in Noah's time. He said it. What He would do. And these sayin's is come to pass. Things is fulfilling right today that was fulfilled thousands and thousands of years ago...That's what it is. (Case R-030, p. 19)

However, not all respondents who attributed the tornado to supernaturalistic causes, saw it either as a warning sign or a way of punishing the sinful. These individuals merely believed God had had something to do with the tornado although they were not sure what it was. As several respondents expressed it:

> There's good and bad taken and good and bad left...I realize it must be His purpose...it's hard to understand. (Case R-226, p. 12)

> I'd say it was the Lord's will. He had His way and I think it was just supposed to be that way. Just what I think about it. I think it is His will to do things... He had a reason, He had a reason. (Case R-122, p. 30)

> [Regarding why some houses hit and not others] It was the hand of God. (Case R-230, p. 15)

CHAPTER V RESTORATIVE ACTIVITIES: MEDICAL, CONTROL, RELIEF, INFORMATION OPERATIONS, AND COMMUNITY SERVICES

INTRODUCTION

The present chapter will describe the various medical, control, relief, information operations, and community services, which occurred during the post-impact phase of the disaster and, in addition, will present data on the extent of participation in and the perceptions and evaluations of these operations by the general populace.

The materials describing the actual restorative activities are drawn from interviews with key persons involved in these operations—i.e., the special respondent sample—and from official reports by various formal organizations and agencies which operated in the disaster. The data on participation of the general populace and their observations and evaluations are derived from the regular sample interviews.

GENERAL DESCRIPTION OF MEDICAL OPERATIONS

Personnel and facilities for treating the large number of injured persons were virtually non-existent in the impact communities of Judsonia, Bald Knob, and Doniphan in the period immediately following impact. In Judsonia, the town's only physician was so seriously injured that he was unable to perform his medical duties. In Bald Knob, the offices of the town's two physicians initially were blocked from access by debris; and the small mill town of Doniphan had no physician of its own.

Despite this, a number of persons in each of these communities hastily improvised first-aid facilities and provided at least minimal first-aid measures for a considerable number of persons. In Judsonia, a nurse and a local mortician began first-aid operations in one of the local churches within a brief time after impact. In Bald Knob, four Red Cross nurses who happened to be driving a blood-mobile truck on the highway nearby stopped at the City Hall and began administering first aid within a half hour after the tornado; they were later joined by at least one local nurse and a physician. The lack of essential facilities and supplies, however, meant that virtually all the injured had to be transported to other communities for proper treatment. As quickly as possible most of the injured were transported to Searcy, Little Rock, or Newport for further treatment or hospitalization.

Searcy served as the major medical center for the entire surrounding area. It contained two small, but modern, well-equipped hospitals. One hospital contained 75 beds and was staffed by two full-time doctors and about 30 nurses; the other, a clinic containing 26 beds, was staffed by three full-time physicians and 21 nurses and other employees. These two hospitals were filled

to overflowing within half an hour after the tornado. To complicate matters, the tornado had knocked out the electricity in Searcy as well as the impact communities and, aside from battery-operated lights in the operating rooms, treatment initially had to be carried out under the improvised illumination of flashlights, lamps, and candles.[1]

Fortunately, the local National Guard Armory had a powerful electric generator and when it became apparent that the two local hospitals would be inadequate in caring for the large flow of injured, the local commander opened the Armory as an emergency hospital. Within about an hour after impact, cots and improvised operating tables had been set up and during the entire night of the tornado and most of the following day the Armory served as the major center of medical operations. Doctors and nurses from the two local hospitals came to work there and they were joined during the course of the night by a National Guard Medical Unit, doctors and nurses from nearby communities, and a complement of senior medical students from the University Hospital in Little Rock. The Armory also served as the major dispatch center for ambulances.

With the continued flow of hundreds of patients during the night, other medical centers were opened. Two of the large church buildings in Searcy were used as receiving and first-aid centers, and many of the less severely injured were referred to the Harding College infirmary for temporary hospitalization and treatment. Many of the injured and homeless also were housed in the college's dormitories and large gymnasium.

Aside from the initial confusion which usually accompanies the sudden influx of large numbers of injured persons in facilities which are inadequate for handling mass treatment, the doctors, nurses, and other medical personnel interviewed reported that they felt that the medical work was carried out as efficiently as possible under the circumstances. Effective improvisation and a large amount of volunteer aid materially helped in making full use of the available facilities and supplies. By midnight or shortly before, there were sufficient trained medical personnel to handle the most urgent cases and, during the night and following two days, the medical centers had many more volunteers than were needed. Many of the local druggists and other merchants opened their stores and provided supplies of drugs, bedding, clothing, flashlights, and other needed items. Volunteers were used in all the medical centers scattered throughout the town—unloading patients from ambulances, transporting them from one center to another, preparing patients for treatment, moving furniture, setting up cots, making beds, serving as nurse's aides, couriers, clerks, and helping in various housekeeping activities (cleaning, preparing food, etc.). Many other persons volunteered blood and supplies of bedding, clothes, hot water bottles, and food.

Most of this volunteer effort was either spontaneous or solicited by informal means. Information spread rapidly by word of mouth that certain types of labor and supplies were needed and persons spontaneously attempted to fill

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[1] Electricity was restored shortly after midnight.

the needs. Following is a quotation from the administrator of one of the Searcy hospitals regarding some of the volunteer effort in her hospital:

> The men were just the grandest--they had someone by me just every minute: 'Now, is there an errand we can run; do you need any supplies or garments?' Then, of course, the telephone operator just went down the telephone directory and I think asked people to bring blankets. I knew we weren't going to have enough blankets and they were just sent in by the dozens and dozens. And our medical technician that night, I don't know how on earth he did it, but during all this he typed 40 people for transfusions and got 19 pints of blood. (Case S-64, p. 4)

Virtually all observers agreed that the behavior of the patients themselves posed no problems in medical handling. Doctors, nurses, and other who worked in medical centers were unanimous in describing the patients as unusually calm, quiet, and undemanding. The following quotes from medical personnel provide a more detailed description of the behavior of patients and their families:

A physician who worked in the Armory all night and personally treated over 50 patients said:

> (What sort of emotional condition were the patients in?) The majority of them were very calm and considerate. More so than you would expect. ...It was remarkable the way people cooperated at a time like that. It was only a short time until everybody seemed to calm down and was ready to assist in any way they could. Some of those people had their clothes practically torn off of them and they were wet and cold and then shocked. After they were given treatment and recovered more or less from the shock, of course, they were inquiring about their relatives. (Case S-20, pp. 9-10)

The administrator of the hospital quoted above worked all night in her hospital, which treated over 200 injured persons. She said:

> The amazing thing was the quietness and the stillness. I kept thinking: Well, I'd seen people just from one car that had been in a car wreck and brought in maybe with just a simple fractured arm and there'd be all this hysteria coming along with it. Well, there was no signs of that at all. I would move about from mattress to mattress out there in the corridors to ask the different people if there was anything they needed or wanted--a drink of water, anything--and they'd say: 'No, I'm all right; let the doctor look after somebody else; they are hurt worse than I am.' (Were there any kinds of people who were especially difficult to deal with during the whole emergency?) Not a one. They were just as docile to anything that was said--no complaints. (How do you explain this?) I think they were just stunned and maybe, too, they were thinking 'so thankful to be alive.' (Case S-20, p. 2 and 28)

The head of another Searcy hospital, which handled nearly 200 storm victims during the night of the tornado, and who personally treated or operated on a large number of them said:

> People were quiet. They weren't too alarmed and the grief wasn't evident at that time. People reacted as though they were so shocked that they didn't have time for grief and, in addition to that, they recognized that there were so many in this same plight that they didn't feel, apparently, that they had any time for individual grief or sorrow at that particular time--even though they were, of course, gravely concerned about their families and friends. But that was a very noticeable thing. The psychological reaction of the people as a whole to this was very remarkable. It's been my experience where there are any great number of people injured at any one time we have less hysteria and less grief than when, maybe, there are one or two injured in a community. ...With so many people injured, there seemed to be a kindred feeling of grief and loss...and they seem to bear up better under it when they have someone to go along with them who possibly are in the same plight. (Case S-52, p. 7)

A nurse who immediately rendered first aid to the injured in Judsonia and prepared them for transport to the hospitals said:

> When we loaded them up at Judsonia, they were fairly calm. Some of the family wanted to get in the ambulance and come to the hospital with them but I told them that we had to take care of all injured and transfer them. And they said: 'Well, that was perfectly all right,' and they were very nice. They were, I'm sure, in shock to a certain degree. They were all asking about members of their family. That was the most common thing of all. They were interested in their relatives. ...Some of them were unconscious and soon as they would gain consciousness they wanted to know about their family. (Did you notice any unusual emotions?) No, the thing that seemed so odd was that they were so quiet. They were so shocked by the storm. (Case S-62, p. 14)

A man who helped unload and load ambulances at the Armory in Searcy said:

> Those that could wait were just as patient as they could be. I saw people where their lips cut clear through, just their faces with holes in them and arms broken, say: 'Don't fool with me; go on and take care of those that are suffering; I can stand it until you can get to me.' And, of course, they were rain-soaked as they could be. A lot of them were cold and we wrapped blankets and quilts and things like that around them to keep them warm. And they were just as patient and had the least panic that I ever saw in a setup like it.

I've seen pretty serious car wrecks where there was more panic than there was in any of this that I saw. People were--well, I don't know--I never saw as much calmness and as much sincere actions on the part of people that were trying to help and those who were injured as I saw in this. (What do you think accounted for that?) I think that our people just realized that they were up against a proposition that was going to take a lot of patience and all the faculties they had to work with. (Case S-38, p. 9)

A nurse who organized medical aid at the Harding College infirmary and who personally treated about 20 patients gave the following detailed account of their behavior.

I thought the people were very calm and appreciative and just nice as they could be. I didn't have any trouble with anybody being naturally upset too much over what had happened. 'Course, a lot of them were dazed. A boy about sixteen, I guess came in and said: 'It killed my daddy, you know.' Didn't seem too upset. Maybe he was just kinda dazed. The boy said he was asleep and waked up and the wind was just roaring something awful. And he said they were just fixing to go somewhere to a storm cellar and his daddy said, 'No, I think we just better stay right here.' And then it hit them. And he said: 'And it just killed my daddy.' The boy had lacerations around his left ear and he said: 'Well, that's just nothing.' And this [neighbor] lady who was also injured said: 'We certainly got out easy,' and said that the house right next to their's was blown completely away. She said they certainly were lucky.

One little girl had a terrible laceration on her leg. All I did with that was just clean it out. It should have been sewed, of course, but I couldn't get to it [because of all the other patients]. I've had a letter from this little girl since she's gone to Little Rock. She's twelve years old and lost her sister and brother and mother. She and her grandmother were both here. And she was very calm the whole time. They didn't tell her about her mother and sister and brother being killed until she'd left here, though. But when we cleaned that wound, why, she just took it so well everybody commented about it. And then I had this letter and she still is just as calm--her attitude is just wonderful.

(How were the rest of the people acting that night?) Well, they were pretty quiet. They were very appreciative of everything that you did for them. And they weren't at all demanding. They just were quiet. (Did they talk? What did they say?) Well, yes, some of them wanted to know what had happened to their relatives and family. I heard them, say: 'Oh, what happened to so and so,' or 'Do you know about so and so?' But they weren't excited. Didn't seem to be. This one man had a six-year-old girl. She had a big cut in her head. Her ear was giving her a

lot of pain. He was holding her in his lap as I was washing the wounds and I noticed he was crying. He was the only one I saw crying the whole night. And he said he thought his wife was killed and his baby was killed. But he later learned his wife was all right; she recovered. And another lady--middle aged--who was here didn't seem worried at all. You couldn't tell by the way she acted. And she didn't say anything about her husband or any of her family until Sunday afternoon [two days after the tornado] when they came. I don't know why it took them that long to come to find her. But when they walked in she started crying. But she was all right apparently as far as outward appearance was concerned, but when she saw them, why then she started to cry. (Case S-58, p. 8-9)

Type and Extent of Knowledge About Medical Center Activities

We turn now to a consideration of the regular sample of respondents to determine the extent and type of involvement in medical center[1] activities on the part of the general populace in the sampled area. Table 5-1 below summarizes the role of the sampled respondents with regard to medical center activities.

Several salient points stand out from an examination of the following table. These may be summarized as follows:

1. The majority of both the impact and non-impact population took no active part in the activities in medical centers. About 60 percent of the population in both areas either did not participate in any way or only heard of the various activities taking place in the centers. An additional four percent in impact areas and 12 percent in non-impact areas simply observed the activities; they were not recipients or donors of any medical aid.

2. As would be expected, a considerably higher percentage of the impact population than the non-impact population were hospitalized, received treatment at a medical center, or had kin or intimates hospitalized or treated.

3. Virtually none (only 1%) of the impact population donated labor or other assistance to medical centers, whereas at least 13 percent of the non-impact population served in some capacity as donor of medical aid. Ten percent of the non-impact donors of aid were volunteers.

We shall discuss each of these three points in greater detail in the following sections.

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[1] The term "medical center" will be used throughout this section to refer to regular hospitals, the Armory, the Harding College infirmary, and the two church buildings used for reception and first-aid treatment.

Table 5-1

SUMMARY OF RESPONDENTS' ROLE IN MEDICAL CENTER ACTIVITIES

Role	Percent of All Persons	
	In Impact	Not in Impact
Inactive Roles		
Did not participate in any way	37	27
Solely a hearer	21	34
Only an observer	4	12
Role unreported	2	—
Recipients of Medical Aid		
Respondent hospitalized*	5	—
Respondent injured and treated but not hospitalized	5	—
Respondent's kin and/or intimates hospitalized	26	11
Respondent's kin and/or intimates treated but not hospitalized	11	3
Donors of Medical Aid		
Regularly employed professional and non-professional personnel of hospitals	—	2
Nurse or practical nurse not regularly employed but active as result of tornado	—	1
Volunteers (labor, donation of supplies or offers of labor and supplies)	1	10
Number of Interviews	139	158

* Hospitalization is defined as a stay of at least two nights in a hospital or other medical center.

Persons Who Played Inactive Roles

A large percentage of the non-impact population in the sample lived in the town of Searcy, where most of the medical activity took place. Hence, we would expect persons in non-impact areas to have greater exposure to the work in the medical centers and more direct sources of knowledge concerning the various medical activities than persons in the impact areas. An analysis of the major source of knowledge of the impact and non-impact population confirmed this expectation. Approximately half the impact population indicated that they had no direct or indirect knowledge of what took place in the medical centers,

while less than one-third of the non-impact population reported that they had no knowledge of medical center activities. Furthermore, the inactive non-impact population more frequently reported that their major source of knowledge was direct (e.g., observation as visitors) or learned from persons who directly experienced or perceived the activities. In both cases, however, the newspaper accounts or radio reports were relatively unimportant as major sources of information. Less than 1 percent of the population in both areas reported that they derived their major information concerning medical activities from the mass media. Most of the persons who obtained their knowledge indirectly learned of the activities through informal sources—either particular known others who were themselves patients, donors, or visitors, or from other persons whose source was unspecified.

Recipients of Medical Aid

At least 26 percent of the impact population and 11 percent of the non-impact population had kin or intimates who were hospitalized. The impact population, of course, was the only group which had immediate household members hospitalized. At least 10 percent of the impact population had one or more of their household members hospitalized. Of these, six percent had only one household member hospitalized and four percent had two or more members hospitalized. Table 5-2 below presents data on the relationship of persons hospitalized to the sampled respondents.

Table 5-2

RELATIONSHIP TO RESPONDENT OF PERSONS HOSPITALIZED

Relationship	Percent of All Persons	
	In Impact	Not in Impact
Spouse	7	—
Offspring	3	—
Mother	1	—
Sibling	2	1
Other relatives (one or more)	13	7
Intimates	3	3
No kin or intimates hospitalized or relationship not reported	74	89
Number of Interviews	139	158

This table shows that persons in both impact and non-impact areas had non-household relatives who were hospitalized, but that the impact population had a higher percentage of close relatives hospitalized than the non-impact population. The percentage of intimates reported hospitalized was three percent for both areas. However, this should be interpreted as an absolute minimum for the impact area cases, since most persons tended to concentrate on reporting kin but frequently failed to detail the number or relationship of intimates who were hospitalized. Moreover, in coding intimates killed, injured, or hospitalized, only direct evidence of close relationship was deemed sufficient to code a person as an intimate (e.g., "my very close friend," "my good friend," etc.). It was the impression of the field observers that the majority of persons in impact areas, at least, had one or more intimates killed, injured, or hospitalized.

The majority of persons hospitalized were treated in Searcy. However, in many cases the injured were initially hospitalized in Searcy and were then moved to hospitals in Little Rock, Batesville, Newport, or other communities. In a few cases, persons were taken directly from the impact areas to hospitals in other communities. In general, the more serious cases were those which were transferred to hospitals in other communities. At least four percent of the impact population were hospitalized in communities outside the sampled area, the majority of these in Little Rock.

As the Red Cross statistics on injuries presented in Chapter I show, the duration of hospital treatment ranged from one night to several months. At the time of our field work, two percent of the respondents in impact areas reported that they had been hospitalized for more than one night but less than one week, and three percent had been hospitalized for one week or more.

Donors of Medical Aid

We have noted previously that only one percent of the impact population worked in or donated labor or other assistance to medical centers, whereas 13 percent of the non-impact population served in some capacity as donors of medical aid. We turn now to a further description of these donors of aid, with particular emphasis on the volunteers.

The one percent who donated aid in impact areas is represented in our sample by one man from Judsonia who was a mortician. He helped organize a first-aid station in Judsonia, and then transported a large number of dead and injured to Searcy and other communities.[1] Although his house sustained considerable damage, neither he nor his wife was injured, nor did he have close relatives killed or seriously injured. Since this is the only case of medical center volunteer aid in impact areas, the remainder of the discussion will deal

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[1] A large number of persons in impact areas were engaged in transporting the injured to the various medical centers. However, this aspect of aid has been treated as rescue activity (see Chapter IV). In the present case the person not only transported the injured but was active in several of the medical centers (e.g., the Armory in Searcy).

solely with the donors of medical aid in non-impact areas.

A cross-tabulation of the non-impact medical center donors by communities and rural areas showed that all of them were residents of Searcy. When this fact is taken into account, as shown in Table 5-3, it was found that about 26 percent of the adult population of Searcy engaged in some form of medical center aid or offers of aid. Translated into a numerical estimate, approximately 1000 adults out of the total adult population of approximately 3800 either actively assisted or gave offers of assistance to the medical centers.

Table 5-3

ROLE OF SEARCY POPULATION IN MEDICAL CENTER ACTIVITIES

Role	Percent of Total Searcy Cases
Doctor or nurse regularly employed in hospital	1
Non-professional personnel regularly employed in hospital	2
Nurse or practical nurse not regularly employed but active as result of tornado	3
Volunteers (labor, donation of supplies, or offers of labor and supplies)	20
Non-active roles	65
Number of Interviews	78

The above table shows that three percent of the Searcy population were regularly employed hospital personnel, an additional three percent were nurses or practical nurses not regularly employed, and 20 percent were volunteers. A further analysis of these donors by sex showed that all of the regularly-employed personnel and all the nurses were females. Of the total volunteers, 62 percent were females and 38 percent were males.

Services in the form of medical assistance, clerical work, and housekeeping activities were the most frequent forms of volunteer activity reported by the respondents. About 14 percent of the Searcy population reported that they engaged in these activities. An additional six percent indicated that they furnished supplies in the form of bedding, clothing, flashlights, etc.

The available data on time of initiation and length of participation in volunteer work indicate that most of the volunteers began work prior to midnight on the night of the tornado and the length of time spent ranged from less than one hour to one week or more. However, the majority of volunteers spent from one to six hours of work at the centers. Although the average working time was brief, the volunteer effort tended to coincide with the

period of the greatest need.

The descriptive data presented in this section suggest that participation in medical center work is related to at least three factors: (1) spatial proximity to the medical center, (2) absence of high loss involvement, and (3) the possession of medical or medically-related skills. Later chapters will attempt to determine more precisely the determinants of various types of volunteer and leadership activity.

Table 5-4

FAVORABLE AND UNFAVORABLE COMMENTS ABOUT VARIOUS ASPECTS OF MEDICAL CENTER ACTIVITY

Nature of Comment	Favorable		Unfavorable	
	Percent of All Persons		Percent of All Persons	
	In Impact	Not in Impact	In Impact	Not in Impact
General comments	13	24	—	—
Speed of service, treatment or care	7	10	1	—
Quality of treatment	3	1	1	—
Speed with which victims were taken to hospital	3	1	1	—
Personal traits of personnel	3	8	—	—
Fairness in treatment	2	2	—	—
Quantity of medical personnel	1	6	—	1
Efficiency or effectiveness of organization	1	7	1	1
Physical facilities	—	3	—	4
Other specific comments	1	1	1	—
No comment of this type	79	60	96	94
Number of Interviews	139	158	139	158

Evaluations of Medical Center Activities

The comments on medical center activities by persons in both impact and non-impact areas were overwhelmingly favorable in nature. Table 5-4 above summarizes both the favorable and unfavorable comments of the population with regard to various aspects of medical activity.

The non-impact population tended to comment on medical center activities more frequently than the impact population. Forty percent of the non-impact population made one or more favorable comments as compared with 21 percent of the impact population. Six percent of the non-impact cases, as compared with four percent of the impact cases made one or more unfavorable comments. This higher percentage of comments on the part of the non-impact population probably reflects a greater degree of knowledge and preoccupation with medical center activities by virtue of their closer spatial proximity to the centers and the greater extent of participation in medical activities.

Aside from favorable comments of a general nature (e.g., "I think the doctors, nurses, and everybody at the hospitals did a wonderful job," or "Everything was done that could be done; I don't know of anybody that didn't have all the medical treatment he needed."), the aspect which received the most frequent favorable mention by both the impact and non-impact population was the speed of service or treatment.

There were, however, a number of differences between the impact and non-impact population with respect to the frequency with which various activities or aspects were singled out for favorable comment. The impact group more frequently commented favorably on the speed with which victims were taken to the hospital and the quality of the treatment. The non-impact population, on the other hand, more frequently made favorable comments on the speed of service, the personal traits of personnel, the efficiency or effectiveness of organization, and the quantity of medical personnel. Again, these differences probably reflect the major concerns and preoccupations of the respective populations. The speed with which the injured were taken to medical centers and the quality of treatment were more likely to be concerns of persons who were themselves injured or had kin or intimates injured; whereas the effectiveness of organization, the quantity of medical personnel, etc., were more likely to be the concerns of persons who played a role in the administration of medical relief or who were more detached observers.

The amount of negative comment was extremely low and was not focalized on any particular aspect, which seems to indicate that there was no single activity or aspect of medical center activity that stood out in the minds of the populace as especially negative or unfavorable. The only aspect on which there was a slight clustering of negative comment was the physical facilities available for medical treatment. Four percent of the non-impact population commented unfavorably on the physical facilities. For the most part, however, these comments were relatively objective in nature and simply called attention to the lack of available facilities or supplies in the face of the urgent needs of the moment.

DESCRIPTION OF CONTROL OPERATIONS

In every widespread disaster there arise acute problems in the control of the population. Contrary to a popular notion, however, these problems usually are not caused by the fear-engendered, "panicky," or "hysterical" behavior of the disaster-struck population itself. Rather, they are caused by the influx of persons from the periphery or outside the impact area who are anxious over the welfare of persons and cherished objects in the impact area, desirous of rendering aid, or simply curious to observe what has happened. The major control problem, then, is not the handling of the disaster-struck population itself, but the handling of thousands of persons who converge on the impact area from the outside. This convergence action by anxiety-motivated, help-motivated, curiosity-motivated and, occasionally, gain-motivated persons frequently hinders or prevents the efficient administration of essential rescue, medical, and other relief and restorative operations in the impact area.

The control of traffic and "sightseers"[1] had stood out as the major control problem in nearly all the previous disasters studied by the NORC disaster team,[2] and the Arkansas tornado provided no exception. On the contrary, it pointed up the problem in a very acute form. Virtually all the control authorities agreed that the control of traffic and the movement of population posed the worst problem with which they had to deal; and persons who were engaged in various rescue, medical, and relief activities often reported that the convergence action by outsiders frequently hindered the performance of their functions.

Within about an hour after the tornado struck White County, hundreds of autos began moving along Highway 67 and into the disaster-struck communities, especially into the town of Judsonia. This flow of traffic continued for over one week. The following quotes from the special respondent interviews may provide a more concrete picture of the nature and severity of the problem.

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[1] The term "sightseers" is the word most commonly used to designate the "unauthorized" persons who converge on an impact area following a disaster. From a social-psychological point of view, the term has no utility--it simply obscures a number of important distinctions in the nature of the converging population. Many of the so-called "sightseers" are persons who are greatly concerned over relatives and friends; many are persons who want to volunteer their help; others are persons who have left the impact area but have returned to retrieve, redeem, or guard objects which they value; some are persons who are simply curious to note the damage and destruction; and a few may be looters or "relief stealers" who wish to operate in the area. One of the major problems confronting control authorities is to devise some rational method of screening these persons. Blanket barring of all persons may create considerable resentment or ill-will on the part of persons who feel that they have legitimate reasons for being in the area.

[2] For other references to this problem, see the Flagler, Brighton, West Frankfort, and Bakersfield reports in Appendix B.

A woman who was in Boldingville during impact and who helped deliver a number of injured to the medical centers in Searcy gave the following descriptions:

> (Respondent was riding with several injured persons in back seat of car a few minutes after impact)...The guy that was drivin' was pretty mad. And after that ambulance was through, I tell you, he set down on his horn and stayed out on the highway till we got there, and everybody stay out of the way--because I was afraid this little girl was gonna die in my arms. People started running out and they /were/ standing around, and you couldn't hardly get through. But none of 'em offered to help. I mean then, you know, they didn't realize quite about it--how serious it was or anything; they were just standing around in the way....People would pull right up in front of us. We just had to stop and let 'em by. (Where were all these people coming from?) That's what I can't understand. But they were lined up from Searcy almost to Judsonia and that was a very few minutes after the storm. And I don't know how they got lined up in such a hurry. And the state trooper was right in the middle of 'em--lined up too. And then they hadn't anybody out to stop the traffic or slow it down or anything. (Case S-61, p. 17)

One of the control authorities who participated in the rescue work in Judsonia said:

> The biggest problem looked like trying to dig out them that were buried under these buildings. That's a slow go, tedious go, that's an awful thing--just flashlights and things like that were all the lights /we/ had to work by. (What would you say was the worst problem you had?) Well, about as bad a problem as we had was keeping the traffic down out of town. (S-28, p. 17 and 28)

A mortician in Bald Knob who delivered many injured persons to Searcy said:

> The worst thing about it was the sightseers trying to get in to see what it was all about. It took us 30 to 45 minutes to an hour to get from here to Searcy--a distance of 10 miles--just bumper to bumper. The only thing that hindered was the sightseers. They'd be bumper to bumper for 12 or 15 miles coming in to look and some of them said they wanted to help but most of them were just looking. Take sometimes 10 to 15 minutes to cross the highway. That was the only thing that bothered us. Couldn't get equipment in here for the cars. (How long did that go on?) Well, it was about four days at Bald Knob and they just cleared them out of Judsonia the day before yesterday /over two weeks after the tornado/. (Case S-12, p. 5 and 14)

A Judsonia business man who participated in rescue said:

> Worst trouble we had was sightseers. We had an awful problem from those sightseers. If we hadn't had those sightseers, we could have got 'em to the hospital a lot quicker. But we got that stopped /inside Judsonia/ long about midnight, and from then on it wasn't so bad. (Case S-33, p. 11)

A National Guardsman said:

> Traffic was a major problem. It was a problem to everybody—State Police and everybody else. You just couldn't hardly get through at all. (Case S-17, p. 64)

The initial convergence of persons on the impact areas apparently came from the towns of Searcy, Kensett, and other immediately surrounding communities. A second wave began later in the evening with persons from more distant parts of Arkansas and surrounding states. A sheriff who made the first attempts to check the flow of traffic into Judsonia made the following comments:

> (What was the first thing you and your Deputy did when you got to Judsonia?) We got to looking around there at the destruction and pretty soon we set up these road blocks. We cambe back down to the intersection and set up a block down there to keep people out. They were just swarming in there by the thousands. They had the town just choked with them. 'Course they did need some people in there but not like they came. They came from Searcy, Heber Springs, Little Rock and North Little Rock, Fort Smith, West Memphis, and all over. You see this was early in the evening, that night, and they just got over in a little while. (What did you use for a road block?) Just flashlights to stop them and I asked them: 'Now, if you haven't folks up there we don't want you to go up there.' 'We can't let you go in there because there is more people there now and you can't get around up there.' 'The town's dark and we just can't use any more folks in there.' 'Course, we had to let some of them by. Some of them was bringing the ambulance and this, that and the other thing. We turned all of them back we could, you know. (Case S-59, p. 3)

At about 10:00 P.M. on the night of the tornado, the Arkansas State Highway Patrol began manning the road blocks and were able to stop the major flow of traffic into Judsonia. Beginning the following morning, however, a third wave of outsiders began converging from more distant parts. One of the County officials describes the problem:

> The greatest problem after the storm was the traffic through here. Sightseers that wanted to go in there and see the place and people with relatives there looking for them. They came from hundreds of miles around here. They came out of Texas, Missouri, Oklahoma, and everywhere else, checking on their people. That

was the hardest problem to deal with. But by Sunday noon /second day following the tornado/ the State Police had that under control. We weren't bothered so much with that after that time. (When did this traffic problem start?) Saturday morning. I'd say in 12 hours after the storm. (S-38, p. 10)

The governor of the State of Arkansas happened to be in nearby Heber Springs at the time that the tornado struck, and he immediately went to the disaster-struck area to survey the situation. By 9:00 P.M. he had called out the National Guard and additional units of the State Highway Patrol.[1] Prior to this time, a National Guard Service Company, stationed in Searcy, had already opened the Armory for a medical center and dispatched a number of troops to engage in rescue and patrol operations in Judsonia, Bald Knob, and surrounding areas. Shortly after midnight, the National Guard began arriving in large numbers to patrol the Judsonia area, engage in rescue and medical operations, haul supplies, clear wreckage, and set up emergency generators and field kitchens. They performed similar operations in Bald Knob, although the majority of the units in White County were used in Judsonia. By the following day, about 400 Guardsmen were on active duty in the area. Although units were released as the emergency came under control, the Guard remained in Judsonia for a total of 11 days. They were released on March 31.

Similarly, the State Highway Patrol guarded the intersections leading into Judsonia and Bald Knob from the night of the tornado until March 28. When the roadblocks were removed on the latter date the swarm of traffic into Judsonia became so large that the blocks were re-instituted on March 31 and maintained until April 2.

In general, then, the two major control authorities in the disaster-struck area were the National Guard and the State Highway Patrol. The Guard maintained internal protection of Judsonia and Bald Knob, while the State Patrol devoted themselves to keeping out sightseers. The latter organization was faced with the continual problem of trying to keep out unauthorized personnel and preventing traffic from blocking the relief and rehabilitation efforts. On Sunday, two days after the tornado, an estimated 1700 cars an hour took to the highway leading into the Judsonia-Bald Knob area, and, according to one of the top Patrol officials, by 10:00 A.M. Sunday morning cars were lined bumper to bumper for 10 miles on either side of Judsonia. Eighty percent of the total personnel in the State Patrol was used in an attempt to unsnarl the massive traffic jam. Emergency vehicles were frequently completely blocked from entrance or exit to the area. The problem was somewhat eased later in the day when roadblocks were established at junctions many miles to the north and south of the area.

The continued attempts of persons to obtain entrance into Judsonia led the State Police to institute a system of passes, in order to screen those who had legitimate reasons for entry from those who did not. A single office in

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[1] The disruption of communications facilities prevented the earlier alerting of National Guard units throughout the state.

Searcy was established for this purpose and an authorizing officer placed in charge. Top officials admitted that this helped somewhat but frequently resulted in inequities. The problem was complicated by the fact that the State Police did not personally know the local populace and therefore had to rely heavily on their ad hoc personal judgments of the persons requesting passes. National Guardsmen, some of whom lived in the area, sometimes complained that persons who had no right to passes were getting into the area. One of them stated:

> Our biggest problem was getting people out of Judsonia who didn't have any business there. We didn't have coordination because the State Police were handing out the passes and we didn't have control over who came in. We had a lot of ill feeling between the State Police and the National Guards because of that. It would have been a lot better if there had been better coordination. (Case S-17, p. 1)

Reactions of the Populace to Outsiders and Control Measures

How did the populace in the sampled areas react to the presence of the large number of outsiders? How did they evaluate the control measures that were taken and the agencies responsible for these measures? For answers to these questions, we turn now to the regular sample cases.

Table 5.5

RESPONDENTS' PERCEPTIONS OF OUTSIDERS

Nature of Perception	Percent of all Persons	
	In Impact	Not in Impact
Neutral statement--merely mentions seeing or hearing of them, but no positive or negative evaluation	47	43
Saw or heard of outsiders hindering--blocking traffic, impeding rescue or relief operations or violating road blocks	30	36
Saw or heard of outsiders helping in rescue, medical, or relief operations	24	17
No perception or knowledge of outsiders or no mention	16	24
Number of Interviews	139	158

Over 80 percent of the persons in impact areas and about 75 percent of those in non-impact areas reported that they had either directly perceived or heard about outsiders in the area. Most persons in both areas had direct perception of the presence of outsiders. In reporting their perceptions or knowledge of outsiders, respondents sometimes merely reported their presence without evaluation, and sometimes evaluated outsiders in terms of helping or hindering various relief and restorative operations. Table 5-5 above reports the nature of the respondent's perceptions regarding outsiders.

Most persons simply mentioned the presence of outsiders without any evaluative statements. However, 30 percent of the persons in impact and 36 percent in non-impact areas mentioned outsiders in the context of hindering or impeding the restorative or rehabilitative operations. Impact cases tended to report more frequently than non-impact cases that they perceived outsiders as helping in the rescue, medical and relief operations. This is probably explicable in terms of the differential situation in the two areas. Outsiders in Judsonia, particularly, frequently helped in the various rescue and relief operations. Persons outside the impact areas, however, were less likely to see this aspect of outsiders and more likely to observe them as impediments to the effective administration of relief.

Turning to more specific attitudes and evaluations concerning outsiders, we find that the populace tended to make certain distinctions regarding outsiders—differentiating those who came out of concern for kin and intimates from those who came to help, and those who were simply sightseers. Table 5-6 on the next page summarizes the positive, ambivalent, and negative attitudes expressed toward outsiders.

This table indicates that the populace generally was more positively rather than negatively oriented toward people who came out of concern for kin or intimates or who came to help. Sightseers were more frequently singled out as objects of negative attitudes. However, there was no clear-cut tendency to express negative orientations toward sightseers. Approximately the same percentage of persons in impact areas expressed positive, ambivalent, and negative attitudes. Persons in impact tended to express positive attitudes toward sightseers less frequently and negative attitudes slightly more frequently than persons in non-impact.

The fact that persons generally accepted the need for roadblocks leading into the impact communities is suggested by the data on attitudes toward evasion of roadblocks. Less than one percent of the persons in impact expressed a positive attitude toward deliberate evasion of roadblocks and none of the non-impact respondents expressed such an attitude. On the other hand, four percent of the persons in both areas expressed negative orientations toward persons who obtained unauthorized entry to the area.

Table 5-6

ATTITUDES TOWARD OUTSIDERS

Attitudes	Percent of all Persons	
	In Impact	Not in Impact
Positive		
People concerned about friends and kin had legitimate reason to be there	6	10
People who came to help were welcomed and appreciated	12	12
Sightseers were harmless curiosity seekers	16	8
Positive attitude toward deliberate evasion of roadblock and unauthorized entry	—	—
Ambivalent		
Outsiders concerned about kin and friends had reason to come in, but still were bothersome	—	3
Outsiders who came in to help were appreciated, but also felt to be bothersome	2	3
Sightseers viewed with ambivalence—can't blame them, but they did get in the way	15	12
Negative		
Outsiders who came in concerned about kin got in way: resented	4	—
Outsiders who came in to help got in way: resented	1	—
Sightseers only got in the way, were a hindrance: resented	17	19
Sightseers were thrillseekers, invaded privacy, indulged in "ghoulish glee": resented	4	2
Negative attitude toward deliberate evasion of roadblock and unauthorized entry	4	4
No attitude expressed or no mention	42	52
Number of Interviews	139	158

The Problem of Looting

The extreme devastation in Judsonia, the fact that the tornado tended to scatter property over a wide area, the evacuation of a large proportion of

the population,[1] and the presence of thousands of outsiders in the area—all combined to provide a favorable situation for the looting of private and public property.

Control authorities and other key informants gave somewhat conflicting reports on the extent and type of looting. This is not surprising, however, since it was virtually impossible to determine whether items reported lost were blown away by the tornado or stolen by looters after the tornado. Following are some comments on the problem by special informants.

Most persons in Bald Knob reported little or no looting in that community. For example, the mayor of the community stated:

> We didn't have any looting or anything like that that I know of. Everybody respected each other's property and what they had, as far as I know. (Did you have any difficulties with any kind of people?) No. Oh, I would say these drifters coming here and trying to sponge on the Red Cross or things like that. Try to take advantage and get free food and free clothes, but it didn't take long for us to get them spotted and get them out of here. (Case S-12, p. 15)

However, a control official in Judsonia said:

> Man, there was lots of things taken. Some money missing... I don't see how anyone could have stolen a piano out of a funeral parlor, there must have been about six of them to carry it. There was a big merchant here in town that had about $200 or $250 in the cash register. Well, that was taken on Friday night after the storm. Any amount of people had money in their billfolds [that] were laying around the house and all of that gone. We had lots of trouble with people—the bank was blowed away and piled up. You could see the top of the vault and one door. And I run a number of people away from that bank. People were pilfering around. I arrested some five or six, taking things away from them, then locked them up. Would turn them loose the next day with the understanding that they wouldn't come back to town. One or two of them lived plumb up in Missouri; and one or two of them lived out around Judsonia. (What kind of people were doing these things?) They're mostly young men, I would say around 19 to 22 or 23 years old. (Were they white or colored?) White. (Case S-28, pp. 10-11)

One of the owners of the Judsonia store in which the cash register was looted gave the following account:

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[1] A Judsonia town official estimated that 1000 persons out of a total population of about 1200 persons were homeless on the night of the tornado and left the town to find quarters elsewhere. (Source: Case S-32, p. 4)

We owned a store and we were so busy we didn't think about money. And the next morning about 5:30 A.M. we went back to the store and decided we would go back and check some things and check the cash register. But someone else done checked that for us. We lost, oh, I guess between $150 and $200 that someone had gotten during the night. Or it was gone, I don't know. But we were just thankful that we're living and we feel that we have a lot to be thankful for. We had a big stock of goods--between $35,000 and $40,000--and we lost our home and our building. I'm still thankful, you know, when you have all your family, why then you really have a lot to be thankful for. (Case S-54, pp. 3-4)

A County judicial official made the following remarks:

After the National Guard and the State Police got on the job, we didn't lose too much stuff. We had meters taken out of wash machines and this, that, and the other stolen where they could pick it up--like spare tires that was blown off trucks and things. I don't think it amounted to much. I imagine we had as small a percentage of losses as you could hope for in a case of that kind. It was not too bad. Of course, people forget sometimes in places like that. They don't mean to be stealing any property and they're not, but they take a little souvenir of some kind to remember the storm which might be of quite a sentimental value to the people that lost it. Had a lot of that. But as far as any major stealing or thievery, we didn't have too much of that. (Case S-38, p. 10)

The two major items which were definitely verified as looted were the cash register referred to above and the piano stolen from a Judsonia funeral parlor. Aside from these, the looting appeared to be of the pilfering or petty thievery type. However, the control authorities reported an additional problem after large amounts of supplies began arriving in the impact communities--namely, the prevention of "relief stealing." A number of control authorities and relief workers pointed out that they were personally familiar with cases of outsiders obtaining entry into the impact communities in order to obtain relief supplies. The following quotes will serve to indicate the nature of the problem.

The Judsonia control official previously quoted above said:

(Did you have any trouble with people coming in to try to take advantage of the food and clothing and stuff?) We had lots of that. We've had people in here for clothes, we've had people in here to eat that I knew were nowhere about the storm. They come in here for miles for clothing. I caught one man in here was carrying out clothes and he'd made, they said, as much as five or six trips--and he was storing them, hiding them in an old shop building. He lived in a town about 30 or 35 miles from here. I locked him up and kept him from one morning 'til that evening, brought him over here, talked to him, and he promised me that he

would leave town that night, and he left his clothes and I turned him loose. I went and gathered up the clothes and turned them back over to the Salvation Army. He had two big pasteboard boxes just packed full of clothing. (Case S-28, pp. 12-13)

A man who served on a Salvation Army committee in Judsonia said:

> We had a lot of people that were from different towns that weren't even in the storm. They were carrying off stuff and getting stuff. I guess that's just a common thing wherever they have a disaster. I noticed in the paper tonight that we had a fellow all the way from Florida up here. We called him "Hobo Mac" and he was coming up to Judsonia. We had an awful lot of riff-raff come in here—just right now [over two weeks after the storm]. We set up this [Salvation Army] committee—because they tried to pick people on the committee that knew pretty well everybody that was affected. (Case S-42, pp. 10-11)

A Judsonia minister who supervised the distribution of supplies furnished by his denomination said:

> The last five or six days [about two weeks after the tornado] we've been having a little trouble with the distribution center here and also at Searcy. People from outside of the disaster area are coming in in trucks and we have to be awful careful. They'll rummage through and get the very best of everything, whether they can wear it or not and carry it off. We had a truck to do that yesterday from Newport, and one day before yesterday from Garner—where they loaded up the trucks and got them away before we realized what was going on. They stole quite a few sheets we had and things like that. After we checked on this truck from Newport yesterday, we found out that they took a whole lot of things without even sizing them—such as ladies skirts and men's shirts, sheets and pillow cases and things like that—a lot of dress pants and things like that. They just bundled them up and put them in boxes and took off. When the relief workers turned their backs and started back at something else they realized that the whole box of sheets were gone. There are a few people over the country that take advantage of your good nature. (Case S-41, p. 36)

One of the factors which probably encouraged this relief stealing, particularly in the later phases of the disaster, were the reports which circulated rather widely throughout the area that there were many more relief supplies than could be used by the disaster victims. These reports were essentially true. Relief workers reported that the influx of clothing, particularly, was so great that it was impossible to use it all.

Looting Viewed from the Perspective of Regular Respondents

The interview data with regular respondents indicate, in general, that

the amount of looting was relatively low and that the value of lost articles was usually small. Table 5-7 below summarizes the extent of loss by looting of the respondents or their household kin.

Table 5-7

LOOTING LOSSES OF RESPONDENT AND HOUSEHOLD KIN

Type and Amount of Property Lost	Percent of all Persons in Impact
Non-Business Property	
Some things missing, but respondent uncertain whether looted or just blown away or lost in debris	2
Specific property lost--definitely thinks it was looted	4
Amount of loss was some or a little	3
Amount of loss was much or great deal	—
Business Property	
Specific property lost--definitely thinks it was looted	2
Amount of loss was some or little	—
Amount of loss was much or great deal	1
Denial or no mention of looting	91
Number of Interviews	139

Only nine percent of the population in impact areas[1] reported that they had lost property which they felt might have been looted. This nine percent includes four percent who definitely thought that they had non-business property looted and two percent who reported the loss of business property by looting. The value of the presumably looted property was usually small. Only one percent of the persons in impact reported that the value was large, and this had reference to business property. Most of those who reported looting to self or household kin were from Judsonia or from the Judsonia rural areas.

Most persons had heard that other persons had property which was looted. When queried concerning knowledge of looting to other persons, 58 percent of the impact population and 52 percent of the non-impact population

[1] Some persons in non-impact owned rental houses or other property located in the impact areas. Only one percent of the non-impact cases reported any losses attributable to looting.

reported that they had heard of looting (of property of others). However, only four percent of the persons in impact and two percent of those in non-impact reported knowledge of looting of non-household kin or intimates. Fifty-seven percent of the impact population and 52 percent in non-impact, made reference to others in general, and these references tended to cluster around the same cases. For example, frequent reference was made to the looting of a cash register in Judsonia:

> I heard the lady up here at this big department store say that somebody looted the store and got $168 out of the cash register. (Case R-202, p. 5)

> We heard—I couldn't verify this, so it's strictly hearsay—that there was $600 stolen from one store while they were trying to get people out of the wreckage. (Case R-150, p. 12)

Other persons reported instances of minor pilferage:

> Somone stole the motor out of the washing machine the finance company sent down here. (Case R-302, p. 22)

> This lady over here pulled out all of her lumber [and stacked it up] and went back the next morning to finish up and somebody had hauled off all they had pulled out. (Case R-202, p. 15)

> I've heard that there were a few things taken out of iceboxes, but I think that people did that because they were hungry. You see, a lot of them hadn't eaten any supper and I think that was all that was done right here. (Case R-310, p. 11)

Over 20 percent of the persons in both impact and non-impact areas denied that they knew of any instances of looting to others.

> (Did you see or hear of any looting?) I sure didn't. I don't believe anybody in town here would steal. (Case R-322, p. 36)

> (Did you hear about any stealing going on?) No, no, the soldiers took care of that. I don't think that there was any looting done. (Case R-250, p. 7)

Very few persons reported that they actually saw looting taking place. Nine percent of the persons in impact areas and one percent of those in non-impact indicated that they had either directly perceived an act of looting or had seen looters after they were seized by control authorities. All others indicated that their source of knowledge was indirect. The nine percent in impact and one percent in non-impact who saw looting should be interpreted with caution, however, since such observations include acts which the person interpreted as looting but which, in actuality, may not have been. For example, out-of-town relatives of the stricken families sometimes helped to collect property and transport it out of the community and, in some instances, these actions may have been interpreted as acts of looting. A number of

respondents indicated that it was difficult to determine whether the persons who were gathering up property were looters or simply unknown relatives of persons who lived in the community.

Since most persons received their knowledge of looting indirectly through verbal report of others or through newspaper reports, it is pertinent to ask how they evaluated the credibility of the looting stories they heard. Table 5-8 presents data on this point.

Table 5-8

EVALUATION OF CREDIBILITY OF LOOTING STORIES

Evaluation	Percent of all Persons	
	In Impact	Not in Impact
Mainly positive: respondent believes stories mainly true*	34	22
Some true—some false: no clear predominance of belief or disbelief	13	10
Mainly negative: respondent thinks stories mostly false or exaggerated	5	4
Stories mentioned, but no evaluation of credibility**	5	14
No looting stories reported	42	50
Number of Interviews	139	158

*Includes respondents who reported looting in factual terms without positive assertion of the truth of the stories but also without labeling them as "stories" or qualifying their credibility.

**Stories labeled as such rather than reported as fact, but without indication of whether respondent believed or disbelieved them.

About half of the persons in both impact and non-impact mentioned looting stories. Of these, most persons tended to accept the stories as essentially true. However, a fairly large percentage of persons either questioned some of the reports or tended to disbelieve most of them. The following quotes illustrate cases that questioned or disbelieved the stories they had heard:

> It's just gossip. Yes, I heard of it, but I sure didn't see any of it. (Case B-202, p. 14)

> Well, I have heard something to that effect. I don't know whether it was just a rumor, or if it was true or not. (Case R-138, p. 33)

> I've heard some talk, but there wasn't anything to it. Too many things like that gets around that's not true. (Case R-154, p. 18)

> Well, I heard about it, but it was like so many other rumors you hear—don't know whether to believe it or not. (Case R-242, pp. 25-26)

Respondents attributed various characteristics to the looters. As Table 5-9 shows, over 30 percent of the respondents in both impact and non-impact areas made some comment concerning the characteristics or motivations of persons who engaged in looting.

Table 5-9

ATTRIBUTED CHARACTERISTICS OF LOOTERS

Characteristic	Percent of all Persons In Impact	Percent of all Persons Not in Impact
Personality attributes or individual character—inherently bad, criminal, dishonest, weak character, etc.	16	16
Outsiders	10	8
People who took advantage of the situation	6	3
Sightseers, souvenir-hunters, transients	5	1
Negroes	3	1
Children or adolescents	2	5
Tornado victims who actually needed the loot	1	1
Other social types—"low class," "white trash"	—	2
Other characteristics	3	2
No characteristics reported	62	68
Number of Interviews	139	158

The highest percentage of those attributing motives or characteristics to looters referred to individual personality attributes. The inference here was that the persons who looted did so because of defects in character structure—i.e., they were inherently bad, dishonest, criminal, etc. For example, one respondent reported:

> It's to be expected in any disaster area, because we always have some unscrupulous people who take advantage of the situation and steal whatever they can. Tourists have been carrying out flowers and shrubs out of town since the tornado. (Case R-150, p. 12)

This is in contrast to the persons who referred the motivation of looters to the situation—i.e., the disorganized or stressful situation prevailing after impact. Thus, for example, one respondent said:

> It was just under the stress and all that brought these things to mind. (Case R-342, p. 9)

The next largest percentage of persons referred to as looters were "outsiders"—often combining this with reference to personality attributes, as in the example quoted above. If this category is combined with "sightseers, souvenir-hunters, and transients," 15 percent of the persons in impact and nine percent of those in non-impact singled out persons who were primarily non-residents of the community. It is noteworthy that Negroes were relatively infrequently singled out as looters. Children or adolescents were identified as looters in a number of cases—primarily by non-impact persons.

> It ain't no gangsters...but we got a bunch of kids here—their mothers will take up for them in anything that they do—and a lot of them they just let these kids go around the streets and they will pick up anything in the world that they see. But I don't blame that on the kids; I blame that on the mother. (Case R-106, p. 14)

> The ones that I heard about were just young boys and I don't know if they had not been properly reared or whether they perhaps were rather dazed themselves—or maybe they had seen motion pictures of that type or read stories... (Case R-342, p. 9)

In general, although looters were frequently characterized as outsiders, there was little focalization of attention on any single group or category of persons. In their identification of looters, the respondents were more likely to refer to individual characteristics rather than social types or categorical classifications of persons. Moreover, although most persons who spoke of looters censured the action, there appeared to be no strong or widespread aggressive or resentful orientations toward looters as a class or, as the following section will indicate, toward the control authorities, or, in fact, toward any other group or individuals with the possible exception of groups responsible for (or involved in) relief and rehabilitation efforts.

Evaluation of Control Agencies and Activities

We have noted that the National Guard and the State Police were the major control authorities in the impact areas during a period of nearly two

weeks following the tornado. It is appropriate to ask, therefore, how the local populace evaluated the work of these agencies. Did they resent the intrusion of these outside organizations and the restrictions which they instituted? Or, did they feel that they were necessary and desirable in view of the circumstances?

Table 5-10 presents data on attitudes of the sample population toward the activities of the National Guard.

Table 5-10

ATTITUDES TOWARD ACTIVITIES OF NATIONAL GUARD

Attitude	Percent of all Persons	
	In Impact	Not in Impact
Positive: Organization was:		
Efficient, effective, well organized	10	13
Fast: got to the scene quickly	6	4
Admirable in its personnel: sympathetic, tactful, etc.	3	—
Fair and equitable in administering restrictions	2	2
Other positive comments, including general praise	14	10
Negative: Organization was:		
Inefficient, ineffective, badly organized	1	—
Slow in getting to the scene	1	—
Disagreeable in its personnel: unsympathetic, tactless, etc.	2	—
Unfair, inequitable in its restrictions or in administration of restrictions	1	—
Other negative comments, including general unspecific ones	1	—
No attitude expressed	70	78
Number of Interviews	139	158

Most of the population was indifferent or inattentive with respect to the activities of the National Guard. Among those who did express an opinion, reaction was favorable toward the National Guard. Thirty percent of the impact respondents and 22 percent of the non-impact respondents expressed one or more positive or negative attitudes toward the National Guard and, of these, the majority made statements of a positive and favorable nature. Most of the

positive comments were of the general "they did a good job" type. Others, however, singled out particular aspects of the Guard's work or personnel for favorable comment.

It should be noted that the impact population was the only group to direct negative comment toward the National Guard. The amount of such comment, however, was negligible and frequently was qualified by other positive comments or indications that the person did not strongly resent the restriction. For example, one respondent said:

> So many times they gave orders that some of us didn't feel were justly right, but they were just carrying out their duty, which we shouldn't blame them for. I don't blame those National Guard boys because a good soldier stays at his post and follows orders. I think one thing we might not have had enough centralized authority during the first two or three days and sometimes we'd have a cross-up with orders and it was a little confusing. But overall I think it was a good job. (Case R-150, p. 18)

A similar picture emerges with reference to attitudes toward the State Highway Patrol, which guarded the roads leading into the impact communities. Although less than 20 percent of both the impact and non-impact respondents expressed attitudes toward the State Patrol, the majority of persons commenting on the Patrol made favorable remarks. Table 5-11 on the following page presents the available data on attitudes toward the activities of the State Patrol.

Most of the negative comment accorded the State Patrol centered around the restrictions placed on entry into the impact communities, particularly by persons who wanted to volunteer aid or felt that they had a right to enter (e.g., relatives of the victims). One example of this negative criticism is contained in the following quotes from an interview with a person in a non-impact area:

> Lots of people that would have gone in and worked and helped every way they could wasn't let go in. They told them they couldn't without going and getting a permit. They said: 'Well, if they won't want me to work any more than that, well, I'll just go home'—they didn't want to go through all the trouble of going somewhere and explaining and telling them what they was going to do and all. (Case R-246, pp. 38-39)

In general, the evidence indicates that the populace accepted the control measures of the National Guard and State Patrol with minimal conflict or resentment, and that the activities of these organizations were generally viewed with favor. Many respondents, for example, credited the vigilance of these organizations for the small amount of looting[1] in the impact areas.

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[1] At least 15 percent of the impact population and 10 percent of the non-impact population reported that the relative infrequency of looting was attributable to the vigilance of the National Guard and the State Police.

Table 5-11

ATTITUDES TOWARD ACTIVITIES OF STATE PATROL

Attitude	Percent of all Persons In Impact	Percent of all Persons Not in Impact
Positive: Organization was:		
Efficient, effective, well organized	5	3
Fast: got on the scene quickly	2	1
Admirable in its personnel: sympathetic, tactful, etc.	1	—
Fair and equitable in administering restrictions	5	3
Other positive comments, including general praise	9	4
Negative: Organization was:		
Inefficient, ineffective, badly organized	1	1
Slow in getting to the scene	1	—
Disagreeable in its personnel: unsympathetic, tactless, etc.	1	1
Unfair, inequitable in its restrictions or in the administration of its restrictions	—	2
Other negative comments, including general unspecific ones	1	1
No attitude expressed	81	87
Number of Interviews	139	158

Moreover, there is no evidence to indicate that a significantly large proportion of persons viewed other control agencies or authorities with disfavor. Spontaneous comments on local, county, state and federal government agencies and activities were also coded and, although the frequency of such comment was small, the same general pattern of predominantly favorable comment prevailed.

DESCRIPTION OF RELIEF OPERATIONS

No brief description could possibly do justice to the hundreds of organizations and agencies involved in the massive relief effort during the post-impact period. Even a simple inventory of all the groups which participated in the various restorative and rehabilitative efforts would fill a large portion of this volume. The present description, of necessity, will provide only a brief outline of the relief work and will concentrate particularly on the work of two national relief organizations which participated in the disaster: The American Red Cross and the Salvation Army. The justification for placing major emphasis on the work of these organizations is twofold: (1) they had the major role in organizing the formal relief efforts; and (2) since they are active in virtually every large-scale domestic disaster, an analysis of their role in this disaster may provide data of general value for future relief planning.

Shortly after impact both the Red Cross and Salvation Army had begun active relief measures. Initially, the Red Cross operations were organized by local chapters; later the overall coordination of activities was undertaken by national representatives. On the night of the tornado, the Red Cross efforts were mainly concentrated in the Searcy area--where most of the medical relief operations were taking place. The local chapter helped to set up the various medical centers, and staff them with volunteers, obtained blood and medical supplies, answered inquiries, and began emergency feeding and shelter operations. The public information chairman of the White County chapter gave the following brief resume of the activities of the Red Cross in an address delivered several months following the tornado:

> Within a few minutes after the tornado struck, our chapter was in action. Our executive secretary and disaster chairman set up temporary Red Cross headquarters in the Legion Hut at Searcy. From there volunteer workers were dispatched to the two overcrowded hospitals in Searcy and to the Armory and the Baptist educational building. Women worked through the night at the kitchen of the Methodist educational building, making coffee and sandwiches for the injured and those helping take care of them at the Armory.
>
> During the night a mass shelter was set up, a committee appointed to answer welfare inquiries, and depots for clothing, food, bedding, and furniture established.
>
> With transportation knocked out--most of the sufferers' cars and trucks were practically beaten to a pulp--central feeding didn't work very well. Mobile Red Cross canteens were therefore sent in from Texas, Indiana, and Kansas to meet the situation, and for 10 days the church women of Searcy, Little Rock, and Conway, Newport, and other towns, prepared food that was paid for by the Red Cross and taken on the canteens into the stricken areas. The people were fed on their own property, where they were attempting to clean up debris.

> Because of transportation difficulties and the fact that the people were still in such a state of shock, very few were able to come into Searcy for clothes, furniture, bedding, and so forth, so one of the buildings in Searcy was used as a wholesale depot at which trucks were loaded daily and supplies carried to the people. Separate clothes and food depots were set up in the city park of Judsonia and in Bald Knob and Georgetown.[1]

As the above quotation indicates, Searcy became the central control and distribution center for relief operations throughout the sampled area. However, other offices and distribution centers were established in Judsonia, Bald Knob, and Kensett.

The Red Cross disaster relief program includes two phases: (1) emergency mass care assistance, and (2) rehabilitation assistance. Under the first category of relief are all the measures designed to mitigate the immediate problems of disaster victims--emergency, medical aid, feeding, clothing, and temporary shelter. Under the second category, are the measures designed to restore individual families to pre-disaster status. These include financial aid to pay medical bills, rebuilding of homes, replacement of home furnishings, replacement of occupational equipment and supplies, etc. The principal of need rather than the amount of loss is the basis for determining the amount and kind of rehabilitation award. The determination of need is based upon information gathered by trained Red Cross case workers in interviews with individual families.[2]

Because of the extreme devastation in the White County area, the emergency mass relief measures by the Red Cross continued for almost two weeks after the tornado. At the time of the field work for the present study, very few rehabilitation awards to individual families had been made. Many families were still in the process of being interviewed to determine the extent of their losses and their needs for rehabilitation. This fact should be kept in mind in reading the sections which follow.

Final Red Cross statistics on the amount and type of aid given to families in White County are summarized below. Most of this aid was given in the Judsonia and Bald Knob areas.

The Red Cross estimated that a total of 975 families suffered some type of loss in the tornado. Of this number, 962 registered for assistance. The following table presents a breakdown of these cases by type of assistance.[3]

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[1] Quoted from: "The Southern Tornadoes of 1952," American Red Cross Publication 1546 (September, 1952), pp. 5-6.

[2] However, the individual case worker only has the power to recommend the amount and type of award. The final decision is left to a local committee of citizens appointed by the Red Cross.

[3] Data are based upon official Red Cross records furnished by Mr. T. F. Desmond, Director, Disaster Services, American National Red Cross, Midwestern Area, St. Louis, Missouri, in a letter dated April 7, 1954.

Table 5-12

NUMBER OF FAMILIES REGISTERED WITH RED CROSS FOR ASSISTANCE, WHITE COUNTY

Type of Assistance	Number
Given Assistance	
Mass care assistance	104
Emergency assistance only	323
Rehabilitation assistance	435
Not Given Assistance	
Unable to locate family	2
Not disaster sufferers	10
Family withdrew application	78
Investigation showed family did not require Red Cross assistance	10
Total	962

A total of $583,299.24 was expended in White County by the Red Cross. Following is a breakdown of these expenditures by type and number of families receiving the assistance.

Table 5-13

EXPENDITURES BY RED CROSS IN WHITE COUNTY BY TYPE AND NUMBER OF FAMILIES RECEIVING ASSISTANCE

Type of Assistance	Number of Families	Expenditures (Dollars)
Mass care	38	$ 13,452.89
Food, clothing, and other maintenance	471	28,258.02
Building and repair	343	379,992.37
Household furnishings	455	86,951.50
Medical	197	66,957.94
Occupational equipment and supplies	40	7,686.52
Total Expenditures		$ 583,299.24

In Judsonia, alone, a total of 303 families in all types of classification were given assistance. The total cost of this assistance was $277,328.00, or an average of $915.27 per case. Eighty homes in Judsonia were rebuilt by the Red Cross and 69 repaired, at a cost of $176,159.40, or an average of $1,182.27 per case.

In general, the relief expenditures were low in relation to the amount of destruction and the number of families affected. Red Cross officials gave several reasons for this relatively low expenditure of funds: (1) the large amount of unpaid volunteer aid, (2) the large quantities of clothing, bedding, household furnishings, and food stuffs donated by other agencies, groups, and individuals, (3) the full use of government loans (Farmer's Home Administration and the Reconstruction Finance Corporation) for those eligible, and (4) the fact that many families undertook the rebuilding and repair of their own homes, asking only for financial assistance in the purchase of materials.

As we have noted in Chapter IV, the amount of self-help and the assistance received from kin and intimates was significantly large. Despite the large number of homeless, the formal relief agencies had few families requiring mass shelter. In the following quotation, a member of a local Red Cross committee explains the arrangements made for the homeless and his interpretation of why so few took advantage of these arrangements:

> On Friday night [night of the tornado] we set up a plan for shelter that had already been outlined. We made arrangements to house and feed 450 people through the facilities of Harding College. But we couldn't get them to come in. The greatest problem that affected every phase of our activity was the dazed, shocked condition of the fellow that went through the storm. And I'd say it lasted fully a week for most of them. They didn't know--actually they didn't realize--what had happened to them. They couldn't make any plans or wouldn't take any suggestions--just couldn't do much with them, just wait till they came out of it. We went to Judsonia after we opened this shelter--folks at Judsonia had been told and made a public announcement [that shelter and feeding facilities were available in Searcy] but there were only about 40 that took advantage of it. The rest of them I don't know--they doubled up with kinfolk--some in Searcy and some out in rural areas around Judsonia. Lot of them went into private homes here with complete strangers, but it didn't make any differences. Folks here just opened up their homes and took them. But a large part of them just stayed over there and just wandered around and tried to pick up and salvage their things that were scattered. And if they had some good things that weren't damaged too badly they were afraid to leave--afraid that somebody'd come along and haul it off. Course there was bound to have been valuable papers and quite a bit of personal property in that rubble--probably money and all sorts of things. And then for a period of days they just stayed right with it. Course we got tents over there for them, let them put them up. (Case S-70, p. 23)

Mention has previously been made of the tremendous amount of clothing and other supplies that poured into the area from the outside. Much of this material was definitely needed. However, as the following quotation from the Red Cross representative quoted above indicates, it also posed serious problems for those in charge of administering relief supplies:

> By Saturday afternoon [the day following the tornado] all this clothing and food and all this vast store of supplies started moving into Searcy for distribution to the tornado areas. And most surely 90% of it came to Searcy rather than any of the other areas in the state because this was the hardest hit. But that created an enormous problem. There was no place to put it at Judsonia. No buildings to put it in. No buildings had been made available at Bald Knob for it. So we had to warehouse it and sort it and handle it here. That created a big problem. We had quite a few headaches. So much that was worthless—rags. They had some pretty good ones. Somebody sent an old doggone big carton of falsies. We got a tuxedo, a nice one, it was in good condition. High button shoes to derby hats. No work clothes to speak of. We had some brand new stuff—some suits that I would have liked to have had...but there was this vast accumulation of stuff that wasn't worth the transportation and maybe it came from Pennsylvania or Kansas or from a long distance at great expense. The fault is that we never had any experience with anything on as big a scale and we weren't expecting any carload lots—and that's the way it came in. Maybe three, four, five of these great big moving vans and loaded to the ceilings. We'd open the doors and it just fell out. And a great percentage of it was unsorted—just thrown together.
>
> The first batches of it came from Little Rock, Fort Smith, Harrison, West Memphis, Forest City, Batesville, Endicott, Independence County—all those northern counties. And it was needed and appreciated. Some of it came boxed and labeled—men's clothing, women's clothing, children's clothing—and usually when it was in that condition it was worthwhile apparel; it was usable. A lot of it was unfit for use—condemned by state health authorities. Unsanitary old mattresses full of bed bugs and torn up and soiled. As bad as folks needed mattresses, they couldn't be permitted to use those things. Well, when some of that stuff was hauled out and burned and there were rumors about how we were handling donated clothing; but it was done because it had to be done, so the State Board of Health said.
>
> Everything else worked pretty smoothly and pretty well according to plan and we had a plan, a committee, set up to handle donated goods. But the enormous quantity, and the speed with which it arrived just swamped us. The mistake we made was not getting the clothes stopped quickly enough. We did eventually get it stopped until we could get our breath, and get some control of it; but it was coming from all over the state and outside the state. It was coming by Railway Express, by truck, by plane, by freight car. We used this large auditorium there at the Legion Hut where we had our offices. They thought that would take care of it. It couldn't. Enormous amount of floor space, but that was filled in two hours—filled ceiling high. One other big building—a used auto parts building out at the edge of town—probably a

hundred feet long and sixty feet wide, with 14-foot ceiling. That was filled in 12 hours. And the end of the night we had to open another building that covered half a city block. By the next day at noon it was impossible to get anything in it. In the meantime, we had directed as much as possible past Searcy to the nearby town of Kensett. They opened up the church and received them; opened up their fire station and received them. We had tents set up in Judsonia in the meantime and had some directed to these big tent warehouses. We got open the gymnasium in Bald Knob—you can imagine the size of that building—and had some sent directly there. After that we had to open a huge warehouse building—it has an enormous amount of space—and it was filled whamm—just like that. Some of the stuff sorted, boxed, and labeled—large quantity isn't. Some of it's junk, some of it's good—used cooking utensils, used furniture, bedding, lumber, potatoes, a freight carload of potatoes, a freight carload of tomato juice.

We finally closed everything up temporarily and said: 'Now we'll make this building a sorting area only; we will not receive anything; we will not disburse anything. We'll make this building over here a disbursement place until we empty it.' And by the time we'd emptied it, we had a good class of materials from the sorting area to move over. Four weeks later, this week, we will wind up and close that last warehouse. (What proportion of this clothing that arrived would you say was up to the standards you would really want?) Forty percent maybe; sixty percent of it was no good; it shouldn't have come into the area at all. It should have been held and sorted and the worthless stuff discarded and not transported. It's too much wasted motion. It took up the time of, I'd say 500 volunteer workers for two weeks. Maybe more than 500. Women and men as far as Little Rock, Newport, Conway, beside the folks from Searcy that worked on that proposition alone. They could have been rendering assistance in another form. (Case S-70, pp. 17-18, 37-40)

This case has been quoted at length because (1) the problem of excess and unusable clothing and other supplies was also mentioned as one of the major problems by many other relief personnel, and (2) the above quotation illustrates a point that is frequently overlooked—namely, the negative aspects of the tremendous outpouring of aid by communities and agencies outside the disaster area.

The Salvation Army—whose relief operations are usually limited to immediate emergency aid—tended to concentrate its major effort in the town of Judsonia. Before midnight on the night of the tornado, it opened an emergency feeding station in the basement kitchen of a church building in the center of the town. This was the only large building in the entire community that was relatively intact and usable immediately after the tornado.[1]

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[1] This building was also used for emergency first aid and for Red Cross headquarters during the first few days following the tornado. It also housed an amateur radio operator and his equipment. Later the Red Cross moved to a school building which had been cleared of debris and temporarily roofed.

During a two-week period following the tornado, the Salvation Army fed on the average of 1,000 persons per meal in Judsonia. The persons fed included the tornado victims themselves, the National Guard, State Police, and volunteer workers of various types (persons engaged in debris clearance, rebuilding, etc.). During the first 10 days, it also used two mobile canteens to deliver food directly to townspeople and persons working in various parts of the town and surrounding rural areas. The organization also set up supply tents and furnished clothing, bedding, groceries, toilet articles, household furnishings, and, in a few cases, money to the townspeople.

The Salvation Army operations were carried out with only a dozen or so professional staff members. Volunteer workers were used almost exclusively in preparing and serving food and in distributing supplies. When it left the area, approximately two weeks later, it appointed a local committee of Judsonia citizens to administer a large quantity of clothing, food, and other supplies which it had accumulated.

Comparative Evaluations of Red Cross and Salvation Army Relief Operations by Special Respondents

One of the few subjects in which considerable criticism was voiced by both the special informants and regular respondents was the administration of relief. This criticism was almost exclusively directed toward the Red Cross and its activities. The Salvation Army, on the other hand, was almost universally praised. In order to provide a clearer picture of the basis of this criticism and develop a background for the regular respondent data to be presented in a later section, we turn now to the comparative evaluations of the Red Cross and Salvation Army by the special respondents.

A considerable amount of conflict was reported between the two organizations, particularly in the Judsonia area where they initially shared headquarters in the same church building. Red Cross officials complained that the Salvation Army was attempting to take over or duplicate normal Red Cross functions. One Red Cross official gave the following account of relations between the two organizations:

> The American Red Cross is chartered by the United States Government and whenever a charter is given to any organization in the Government there are certain primary and mandatory responsibilities that organization has, otherwise a charter wouldn't be granted. One of those responsibilities that we cannot pass on to anyone else is disaster service. The government of the state understands the American Red Cross is the official disaster agency in the State of Arkansas. However, we do find there are other agencies who, I think, are jealous of our authority. We can't help that—we've got to carry out our responsibility. But this misunderstanding of who's supposed to do what often slows down the emergency activity and the reason for that is, in many instances, the community doesn't understand, so we attempt to advise, inform and prepare for disasters. We're not an organization that's coming in to assist on emergency only. Seventy-five percent of our expenditures and things like that are on rehabilitation, not emergency, so that, actually, the emergency period is a phase that financially is

not an important part. It is attempting to get people back into their homes as soon as we possibly can or give them whatever assistance is needed during the emergency period. Many people contribute to Red Cross but they do not understand the program that they're contributing to. That lack of understanding often leads to questioning and questioning must be answered in the emergency period, which takes time--so we're interpreting many times when we should be acting.

So going back to this emergency period again, there was some delay. There was a time element when we were attempting to move a staff in--inasmuch as we're not any fly-by-night organization that we come in to stay, inasmuch as we are an organization that has a fund raising goal of $85,000,000 that we must operate in a businesslike manner and businesslike procedures. We have policies that we need to follow and, as custodian of all this money, we must make certain that we spend it correctly and we can't come into a community and just hand out without any type of a policy or procedure because, after all, our purpose is to help those who are affected by a disaster and not just people in general.

We have and have had in the past a little difficulty with the Salvation Army because the Salvation Army has expanded their program and it duplicates our activities in an emergency period. The Salvation Army I will admit does many fine things, but they also in many cases have hampered our activities to the degree of not just affecting us but the people who were in there to help. We have been able to reach agreement at a top level with everybody except the Salvation Army and they will not accept it. I don't know for what reason, but they are attempting to enlarge their disaster services. (What sort of problems specifically did you run across?) A lot of them; they were just as petty as they could be. I'm not saying that they're entirely to blame; I'm saying that there were problems that were greater because of the Salvation Army activities in the field to which we are chartered. Now that's actually the point I'm making. Now, they will say no doubt that the job is too big for us. Well, that's perfectly all right; they can say that. They concentrated all their efforts in Judsonia and I might ask: 'Where is the Salvation Army now?' Which is a logical question, if they're going to assume the disaster responsibility, where are they now? They concentrate all their efforts in Judsonia. They were not active in Bald Knob; they were not active in Searcy proper; now where else in the area I don't know whether they were active or not, but they moved everything into Judsonia. Well, if they're going to be a disaster agency, then what about all the other areas in the seven states and what about all this area up here?

Oh, there were a lot of little things such as truckloads of used clothing being sent into the areas and assigned to us; the accommodations in Judsonia, a majority of them had been demolished as far as housing facilities, and they had occupied the Methodist church and a truck would come in with goods for us that they directed to their spot to be unloaded. And such things as we attempting to occupy the second floor of the same building they were in and we hang our sign and the

> Red Cross flag up and they took the marker down—just little things that irritate and aggravate. People that were looking for the Red Cross were misdirected and they passed the information on to somebody else and eventually the story would end up that the Red Cross wasn't there. That's what happened. When we moved out of the /church/ office over there /and moved into a school building in Judsonia/ they said we were moving out of town, we were going. But, we've had fine relations with other agencies such as the National Guard units and the FHA, and the HFC. The HFC in Judsonia went into the same building we were in and we're grateful to them and always have fine relations. The same for the FHA. The transportation of supplies not only by the National Guard but by the regular Army was only the best. (Case R-72, pp. 17-22)

One of the bases of the criticism directed against the Red Cross appeared to stem from the feeling that it was too slow in getting emergency relief and rehabilitation organized. Following are quotes from special respondents in Judsonia:

> There's been quite a bit of talk about the Red Cross—criticism by people who live here. People are waking to the realization that their homes are gone and they don't have anything and someone's promised them help and apparently they aren't working as fast as they think they should. Seems that the people think the Salvation Army has done more. I think that perhaps that's the reason—the Salvation Army set up much quicker, and began to feed them and they won a lot of friends that way. And they've stuck with it. It wasn't a haphazard procedure. They fed three meals a day and any time during the night anyone wanted to go there—and in addition to that they put up tents and had a very effective procedure of distributing food and clothing.... People are a little discouraged. They were expecting some immediate help and they aren't receiving it from the Red Cross—and that perhaps is the reason for the criticism. (Case S-41, p. 22-23)

The informal indiscriminate nature of aid given by the Salvation Army was frequently contrasted to the "red tape" and formal, bureaucratic procedures of the Red Cross. For example, one prominent Judsonia citizen said:

> They've been a great help here. If it hadn't been for the Salvation Army people there'd been more people a-died here than what it was—from exposure, lack of food, clothing. They fed every man that come by—feed 'em or give 'em coffee, three, four, five times a day. Took the field kitchen over to where anyone was working, give them food, so we are all mighty well pleased with what they did in this town. Great job—Salvation Army. How quick, how fast, how generous they are—and right at the time when it really counts. They moved in here so fast that they saved a lot of lives. And everybody 'round here knows it. And they feel very, very friendly to 'em. Everybody's pretty well enthused now. They know what the Salvation Army's done for this community. They haven't turned down anybody for anything they had and could give. From money up. Fellow needed money and they had it, they'd give him money; if he really needed it. If he didn't, they give him

next best—food, clothing, give him something to eat right on the spot. So you'll find this vicinity pretty well sold on them. (Case S-33, pp. 17-18)

The minister previously quoted said:

> The Salvation Army is a religious atmosphere, but with the Red Cross the whole thing is a business basis...they had a lot of red tape. But with the Salvation Army you go right up to them and ask them for help and they give it to you then without asking any questions, particularly. Don't know if they keep a record of what they do or not. I guess they do, but they don't have very many things to ask you. The Red Cross runs on a cold formal basis, whereas the Salvation Army is more or less like a religious organization or a church—opens up the very bottom of its heart and gives everything it has to the people then and there—sticks with the people. There is a difference in spirit. Some [of the people who have gone to the Red Cross office] have become disgusted and walked out without even finishing their questionnaire. And they had a meeting the other night with the Red Cross—I guess it was the town council—and one of the men that was on the council was telling me about it. And the Red Cross was talking about sending in trailers. They been promising the people trailers ever since the disaster and they said perhaps we can get them in, I believe they said in two weeks, that was from last night. Well that discouraged the people so badly that quite a few of them got up and walked out. The people are expecting immediate help—maybe it's the people's fault, maybe we are too much that way—but people like to see results. (Case S-41, p. 27)

The sympathetic treatment by the Salvation Army mentioned in the above account, was referred to by a number of respondents. One of the women who worked as a volunteer with the Salvation Army said:

> It didn't make any difference how many came in—the Salvation Army would sympathize with you. They were there with you in your sorrow, your trouble. They always had a pleasant word. They never refused anyone. They were there for every need. They had little tents set up by the church—there wasn't anything in the line of groceries, toothpaste, toothbrushes, just everything imaginable—it was just like going into a store. And they didn't question you at all. Just got whatever they had there, which was everything you could ask for. They don't question. They just fill your order if it's at all possible. I can't praise them high enough. They really were kind and sympathetic. (Case S-54, pp. 8-9)

Some respondents included criticism of the Red Cross' publicity efforts in their comments:

> The Red Cross got itself a fairly bad name inasmuch as they do go out for publicity so strongly. They draped their banners all over the Educational building; they came up to our distributing tent [a church-sponsored distribution center] and pulled one of the Red

> Cross trucks up in front of it and one of the Red Cross men with his uniform stood on the platform in front of our tent, and they took a good long film of our tent with the Red Cross truck in front of it and the Red Cross man on the platform—and this was being sponsored by the /church/ not the Red Cross. It looks to me like they could have a little better management in some of these cases and respects. A little more action, and a little less red tape, and a little lese banner waving. Maybe they could get along a lot better, I don't know. Just one man's idea backed up by the opinion of quite a few, though. (Case S-41, p. 28)

A woman who served as a volunteer in the Salvation Army feeding station said:

> The Salvation Army moved there immediately; they didn't go through the red tape and take weeks and weeks to do anything and I think that was the main difference. Course they don't do some of the things that the Red Cross probably will do and haven't done. They may replace a few homes here; and the Salvation Army just doesn't have the money to do things like that. They work mostly in giving food and smaller things like that. The Red Cross is a bigger organization; they have a lot of money behind 'em. They'll play this local situation up and they'll make millions of dollars off of this disaster, but will we get it? No, we won't get it. They may build a few homes here, but there will be very few and they'll be small. Those furniture orders that they give out—some of 'em about $30. Thirty dollars wouldn't buy one piece of furniture. They just want to buy the cheapest thing that they can get by with. Put the biggest show with it. Take a lot of pictures—and they believe in taking pictures of everything that happened. (Case S-47, pp. 33-38)

In view of the fact that the field work for the present study took place within a period of two to three weeks following the tornado, the preceding evaluations are based primarily on a comparison of the two organizations during the emergency and immediate post-emergency period. It will also have been noted that respondents frequently compared the emergency activities of the Salvation Army with the rehabilitation activities of the Red Cross—a comparison which, from a purely objective viewpoint, was somewhat unfair, in view of the fact that Red Cross had made few rehabilitation awards at that time. A number of special respondents took this distinction into account in their evaluations of the two organizations—pointing out that, despite their more favorable attitude toward the Salvation Army at the moment, they were willing to re-evaluate the work of the Red Cross at a later time. For example, one of the leading businessmen in Judsonia said:

> I don't know just what the Red Cross is going to do. The Salvation Army has really been a wonderful help and I understand that the Red Cross in cases like this is awful wonderful people. I don't know. They're real slow in getting kicked off. I can see why that would be, because it's a pretty big job, because this town is leveled—it's just torn all to pieces. The Salvation Army were just a godsend to us here. I don't know what we would have done without them. I'm serious about this—they were out on the streets the next morning serving doughnuts, hot coffee,

and sandwiches. They really are all right in my book. If I had a nickel in my pocket, I'd never turn them down if they want it. (How about the Red Cross's activities here?) They've been very halpful. They've been very nice. They're a great organization, there's no doubt about it. You know the Salvation Army, they give from their hearts. The Red Cross, it takes lots of carbon copies. I mean, their work may be a wonderful thing. I guess it is. Everybody says it is. But I just don't know. (How do most of the town folks feel about the two groups?) Well, right now they would be a little partial to the Salvation Army because the Salvation Army has done more for them up 'til now. But a month, two months from now, they might say the Red Cross was better. The Red Cross, I understand, are slow to get started, but when they do get started, I understand they really go to town. So I'm told. (Case S-43, pp. 15-16)

Another leading Judsonia businessman said:

I understand the Red Cross serves a different purpose. Don't know much about their working. We haven't had time to find out yet about what they are going to do. I understand they take up the finance end of this deal. 'Course it's going to be very important; somebody going to have to take it up. That's all I know about them. (How did people in the town generally compare the two groups?) Well, they couldn't make any comparison now because the Red Cross hasn't had opportunity to do very much. I don't know how long it takes them, but you know when they go to paying out money, people don't do that right fast. They're under the impression here that the Salvation Army is a quick relief organization; and they're going to think the Red Cross is a finance corporation. Come in and do something for the people after the Salvation Army leaves.

The Red Cross did a lot; they tell me they did a lot of nice work over there the night of the storm, in hospitals. They brought in there some blood that they badly needed. I wasn't over at the hospitals 'til the next day, but they say they did a mighty nice job over there. That blood was so badly needed, and they helped around considerably. (Are there any things that you think the Red Cross hasn't done, that it could have done?) Oh, yes, there's plenty the Red Cross hasn't done, that it could have done. They should have a little better moving, faster moving organization. I think they could have contacted all these people a lot quicker—by setting somebody in there with 'em and contacted, oh, eight, 10, 20 apiece a day. Wiping, finishing it up and closing 'em out and handing 'em in to the main office board or whatever the way they handle 'em. That could all be handled a little faster. They are just not organized to get fast action—which people in distress need. Seems to me a relief organization ought to be set up to cut all the red tape—get down to business. 'Course can't dole out money right fast. And they expect a feller to know where he's putting it, of course. That's all right. I think it's good business to know where you're putting money. (Case S-33, pp. 21-23)

One of the community's control officials said:

> I think the Salvation Army done a good job, feeding them; that's all they do, I think—groceries and stuff like that. But I think they did a good job. The Red Cross did, too. I don't know how the Red Cross is going to come out on helping rebuild; people that is not able to rebuild, you know. Some people didn't have no insurance in Judsonia, lots of them. I don't know how that's going to work out. Don't believe I seen a man yet that so far got anything—help from them yet, you know. They claim that they got to investigate and all that sort of stuff to see what they had before it happened. Check on them, they say, before they can get the money. I didn't lose nothing much, so I don't have to bother, and we don't have to ask them for help. (Case S-31, p. 19)

As the above quotations indicate, it is possible that a sampling of the impact population after the awarding of rehabilitation aid might have shown more favorable attitudes toward the Red Cross. Nevertheless, at the time of the study the evidence from the special respondent interviews indicates that persons in key positions in Judsonia were often critical of the organization and its activities. The most frequently mentioned criticisms centered around the following points: (1) the slowness in administering emergency relief and rehabilitation aid; (2) the bureaucratic procedures of the organization; (3) the formal, clinical detachment of the workers; and (4) the publicity efforts of the organization. The praise of the Salvation Army, on the other hand, usually made reference to one or more of the following: (1) the speed in administering emergency relief; (2) the non-discriminative, flexible manner in which aid was dispensed; (3) the informal, sympathetic approach of the personnel; and (4) the fact that aid was brought directly to those who needed it most—the persons in Judsonia.

The latter point was mentioned in many different contexts by the special respondents, e.g., that the Salvation Army mobile feeding trucks went directly to the sites where victims were attempting to salvage their goods and systematically delivered food several times a day; that the Salvation Army officers canvassed the town to determine the needs of various families and volunteered assistance to individual families, and, by contrast, the Red Cross required persons to come to them and "tell their life history" before aid was dispensed.

Similar evaluations of the two organizations were also found in the NORC study of the West Frankfort, Illinois mine disaster. In the latter, frequent praise was given to the Salvation Army because it moved its mobile canteen directly to the mine head, handed out aid indiscriminately to the miners who escaped, the family members waiting at the minehead, the rescue workers, etc. Favorable mention was also made of the emotional comfort and support given by the Salvation Army personnel to the wives and other kin of the trapped miners who were anxiously awaiting word of the fate of the miners. The Red Cross, on the other hand, was sometimes criticized because it restricted its activity to the community proper (e.g., its mobile canteen was set up outside a temporary morgue in the town, rather than near the minehead).

The materials reported above should not be interpreted to mean that the majority of special respondents were critically oriented toward the Red Cross. The criticism was particularly marked in the Judsonia area, and was

sometimes voiced by special respondents in other communities. The generally favorable attitude toward the Salvation Army tended to prevail among most of the special respondents who commented upon relief activities, but the Red Cross was also praised for its role in the medical centers and for its emergency relief program. In some cases, criticisms of certain aspects of their work were made, but the overall judgment was favorable. In Bald Knob, for example, a major town official commented as follows:

> It was only 20 minutes [after impact] before the Red Cross nurses came in. [The nurses had been driving a bloodmobile truck on the highway nearby when the storm struck.] So they just stopped and we brought them here and put them right into this building. We got coal oil lights and they went right to work. Those nurses took right over--'cause they'd patch them up and fix them up and we'd load them right in the ambulance and...get them out of here. Everything from here practically went to Searcy. But those four Red Cross nurses, I want to thank them and I'm going to personally. They formed a blood bank--they'd been up at Newport taking blood and, just think, they just went ahead. I don't believe it was over 20 minutes till they drove right in here...and said 'We're ready to help any way we can,' and they just set up their office there and stayed about two days.

The same official also said:

> We had clothing here that was sent in here and there was 75 percent of that stuff that come in here that was sent direct to me or to our local communities; they didn't want to turn it over to the Red Cross at all. They wanted it distributed on their people that day; which has worked out mighty nice. The Red Cross come in here and, of course, they wanted to take over and go to issuing these pieces out, each piece. And I told them there was nothing doing. Now we'd work with them, and 'course we were ready to work with them 100 percent; but they wasn't going to start and wait a week to give the people these clothes. They had to give them to them right then. And that's the way we worked it out; and we've given away trainloads of clothes to these storm victims. There's no cause for anybody being without clothes. And food the same way. (Case S-9, p. 3)

Another community official in Bald Knob said:

> Seemed like that the Red Cross was a little bit disorganized at first on account of the news going out that it was Searcy instead of Bald Knob that was hit. And we were without mattresses around here I guess for close to a week--until we got busy and called Washington again and called both the broadcasting stations in Little Rock and one at Searcy. I went up to see the Red Cross and they came downtown and bought all the mattresses they could find in town. And then they called Little Rock and had more sent out. But they didn't get those 'till I called Washington and they called back and told me who to see--the main man at the Red Cross. But I didn't have to call him. By that time these people here heard about it and they came down to see me and got busy and brought the mattresses. People were getting plenty

of clothing—they had to have something to sleep on. Not criticizing the Red Cross, you understand, but it seemed like they were a little disorganized in the way of getting started, on account of no men folks in here to take charge. The women folks were afraid to move out, didn't know just what authority they had and if you asked one of them they said they'd have to call Little Rock to find out what they could do. But they were a little slow in getting started and getting organized.

But we been getting good cooperation out of the Red Cross. We got the Red Cross housed up here in the agriculture building for offices. And they had the food cafeteria there to do the feeding and cooking there. They been feeding anywhere from 500 to 1500 a day up there for a while. (Case S-10, pp. 6-7)

Relief Aid Directly Received by the General Populace

What types of aid were received from the various relief organizations by the general populace? To what extent did persons in the impact and non-impact areas participate in volunteer work with the formal relief agencies? How did the populace evaluate the work of the relief agencies? For a consideration of these and other related questions, we turn now to the regular sample interviews.

Impact victims received a variety of goods and services from the various relief organizations in the post-impact period. Moreover, many of them availed themselves of such aid from more than one organization and on more than one occasion. While the bulk of organized aid was dispensed by the Red Cross and Salvation Army, many respondents mentioned the contributions of local church, civic, and social agencies. These agencies contributed in a variety of ways—other than dispensing goods to the victims: they provided many of the volunteer workers for the larger organizations; cooperated with the Red Cross and Salvation Army by providing facilities for effective operation with buildings, cooking equipment, identification of victims, etc.; gave comfort, and, in general, functioned as a kind of headquarters where victims could congregate and re-orient themselves to the new conditions imposed upon them.

Table 5-14 shows the extent and types of aid dispensed by the various relief organizations as reported by the recipients of such aid. The local agencies put forth as much time and effort as did the larger ones but in the final analysis had fewer goods and services to contribute. Nevertheless, of those goods and services listed, eight percent of the impact cases reported themselves or their families as having received clothing from local organizations. This compared favorably with the percentages receiving clothing from the Red Cross and Salvation Army. The provision by local agencies of housing facilities, although small, also compared favorably with that provided by the larger relief agencies.

Table 5-14

NATURE OF AID MENTIONED AS RECEIVED BY IMPACT HOUSEHOLDS FROM THE RED CROSS, SALVATION ARMY, AND LOCAL AGENCIES

Type of Aid Reported	Percent of Impact Cases Reporting Aid From:		
	Red Cross	Salvation Army	Local Agencies
Food and beverages	28	34	4
Clothing	12	10	8
Household furnishings	9	3	3
Medical care and/or cost	4	1	—
Advisory and counseling services	18	—	—
Informational services	6	1	1
Home repair or replacement	1	—	—
Repair or replacement of non-residential structures	—	—	—
Immediate temporary shelter	1	—	2
Semi-permanent housing	2	1	2
Money	—	—	—
Other specific services	2	—	1
No organization aid received or no mention of aid	57	64	86
Number of Interviews	139	139	139

Table 5-14 also shows that there was a considerably wider range of goods and services reported as received by impact cases from the Red Cross as compared to the Salvation Army. Moreover, a somewhat greater overall percent of all impact cases were helped directly by the Red Cross than by the Salvation Army. In considering the specific types of aid received, recognition must be given to the procedures and plans of the two large organizations. The Salvation Army is oriented toward affording immediate relief and comfort for victims of disaster, and, therefore, tends to remain on the scene for shorter periods. The Red Cross generally has both immediate and longer range relief plans. It is not surprising, therefore, that the largest percent (34%) of impact cases receiving aid of any given kind from either organization, reported being fed by the Salvation Army. With food distribution the major source of individual-Salvation Army contact, the remaining points of contact are largely confined to clothing distribution (10%), although three percent reported getting some house furnishings. For all practical purposes, then, the aid received by impact cases from the Salvation Army can be said to have consisted largely of food and clothing.

The Red Cross, with a larger organization, greater funds, and a rehabilitation program, operated with somewhat different problems in mind. As already observed, the Red Cross met a wider variety of needs and for a somewhat larger percent of the total impact population. Its foremost type of aid, in terms of percent (28%) of the impact cases was food distribution. Next were advisory services. Strictly speaking, these are not services as much as they are preparations for future goods and service. Nevertheless, such contacts served to create a sense of hope and expectation of "real" rehabilitation. The distribution of clothing by the Red Cross directly reached 12 percent of the impact cases—about equal to the percent receiving clothing from the Salvation Army.

A very small percent (2%) of the non-impact cases (not shown in Table 5-14) received some type of relief aid. This may have been legitimate, since several non-impact cases suffered varying amounts of damage and deprivation. On the other hand, the documents reveal a considerable amount of gossip and assertions to the effect that those not in need were taking advantage of the system of distribution. It is also worth noting that not all of those who were entitled to aid sought it to the extent that they might have. Many respondents reported themselves and/or others as too proud, embarrassed, or otherwise reluctant to seek aid. Some felt that, in spite of personal losses, others were more in need and, therefore, they did not accept aid or did so to a very limited extent. However, many respondents freely took advantage of the services of more than one relief organization.

An analysis of aid received by impact cases (Table 5-15) reveals that, of the impact population who resided in town areas, a greater percentage received food and beverage from the Salvation Army than from the Red Cross. The reverse was true for Judsonia-rural, where a greater percent received food and beverage from the Red Cross than the Salvation Army. As noted above, the Salvation Army concentrated its major operations in Judsonia. The percentage of those in Judsonia-rural receiving various kinds of aid from the Red Cross compared favorably with those in town areas receiving aid from the same source, indicating that the Red Cross relief operations were fairly evenly distributed in town and rural areas.

Only seven percent of the Judsonia population reported receiving some kind of shelter aid from the Red Cross and two percent from the Salvation Army. The figures are low in comparison to the percentage receiving shelter aid from those organizations in the other impact areas, which would indicate that a higher proportion of the Judsonia population than of the population in other impact areas, received shelter aid from individuals. The percent of Judsonians who received Red Cross advisory aid (15%) was also low in comparison with other impact areas. The differences are not fully explicable in terms of our data. As some of the special respondents suggested, it may indicate a resistance on the part of the residents to seek Red Cross aid; it may indicate that the amount of aid received from individuals and other relief agencies was greater than in other areas, and therefore reduced the need for aid from the Red Cross; or it may reflect a tendency for Judsonia residents to mention the rehabilitation aspect of aid less frequently than persons in other impact areas. Probably a combination of these and other factors operated.

Table 5-15

ORGANIZATIONAL AID RECEIVED, BY IMPACT AREAS

Organization and Type of Aid	Percent of All Persons in Judsonia	Judsonia-Rural	Doniphan-Boldingville
Red Cross			
Food and beverage	27	25	28
Clothing	9	14	20
Advisory and counseling	15	25	28
Shelter aid	7	21	24
All other aid	12	11	—
Salvation Army			
Food and beverage	36	14	52
Clothing	9	4	14
Shelter aid	2	—	12
All other aid	3	—	—
Local Agencies			
Food and beverage	7	7	12
Clothing	12	4	8
All other aid	10	7	8
No organizational aid received or no mention of aid	34	57	32
Number of Interviews	86	28	25

The percentage of Judsonia cases reporting that they received clothing from the Red Cross and Salvation Army was also lower than for other impact areas. However, many of the churches in the area had their own clothing distribution centers and were extremely active in this phase of relief.[1]

[1] A number of special respondents who were engaged in relief activities pointed out that the persons who most needed clothing, bedding, food, and other supplies were taking only those items which could be consumed immediately, since they had no place to store clothing and other supplies that would be needed in the future. Many of the persons who were less affected, on the other hand, were stocking up on these relief items in large quantities because they had storage facilities. For this reason, some of the churches and other local agencies made plans to store quantities of clothing, food, household furnishings and equipment and distribute them at a time when the hardest hit disaster victims could make use of them.

In addition to receiving aid, a second point of contact with the various relief organizations was through knowledge about kin, friends and other known persons receiving aid. The Red Cross was by far the most prominent organization referred to in this regard. Of the impact cases, 12 percent reported knowing of others having been helped by the Red Cross. For non-impact cases, the figure was 14 percent. The Salvation Army was known to have helped particular others to a lesser extent but not any more than was known about such help to others from local relief organizations. The persons known to have been helped included both non-household kin and non-kin, with the latter being mentioned by more respondents (28%) than non-household kin (10%). As to the nature of aid mentioned by the respondents reporting on this matter, 21 percent said the aid received by the known persons was food and clothing, and seven percent mentioned house repairs.

Volunteer Activity with Relief Organizations

Another means of contact between the individual and relief organizations was through volunteer work with one of the organizations. In emergency situations such as this, relief organizations usually require the filling-in of a skeleton structure by persons recruited from the population in the vicinity of the disaster area. The interview data were coded with regard to the volunteer relief activities of the respondents and other members of their households. These data reveal the important role in disaster work played by many of the persons in the non-impact areas, some of whom were already members of the local Red Cross chapter or church groups. As the following table shows, 26 percent of the non-impact population reported that they or some member of the household had engaged in volunteer work with a relief organization, and most of these worked with the Red Cross or local organizations.

Very few of the impact population engaged in volunteer work with formal relief organizations. Ten percent of the impact households had one or more members participating in formal relief activities. A slightly higher percentage worked with the Salvation Army and local organizations than with the Red Cross.

The available data indicate that most of the volunteer work was begun on the day following the tornado or sometime thereafter. In both impact and non-impact areas, only one percent of the persons indicated that they engaged in volunteer work with formal relief agencies during the night of the tornado. This, of course, is not surprising in view of the fact that most of the formal relief work did not get under way until the day following the storm. The duration of work ranged from a few hours to one week or more, with most of the volunteers working for several days. Three percent of both the impact and non-impact respondents reported that they worked for one week or more.

The most frequently mentioned reason for terminating volunteer relief activity was the pressure of normal routines. Other respondents stated that they felt they were no longer needed or that there was already sufficient help. Those who did not help through organizations, gave various reasons for not doing so. Here, too, the pressure of normal routine was the most frequent reason given—12 percent for non-impact and four percent for impact cases.

The next most frequently stated reason for both types of cases was physical incapacity (pre-tornado) including age, illness, etc. As might be expected, some of the impact cases said they were much too busy with their own personal disaster-related problems to have offered aid. It is interesting to note that about 30 percent of the non-impact cases offered reasons for not volunteering as against 18 percent of the impact cases. The difference can perhaps be explained in terms of the greater "need" on the part of non-impact respondents to "explain" why they did not volunteer—a matter of attributing plausible reasons in the face of community needs for their services.

Table 5-16

VOLUNTEER ACTIVITY WITH RELIEF ORGANIZATIONS BY RESPONDENT AND/OR HOUSEHOLD MEMBER

Organization	Percent of All Persons	
	In Impact	Not in Impact
Respondent		
Red Cross	2	14
Salvation Army	3	1
Local organizations	4	7
Unspecified	1	3
Household Member		
Red Cross	2	4
Salvation Army	2	—
Local organizations	1	1
Unspecified	—	3
Respondent or household member performed no volunteer work or work unreported	90	74
Number of Interviews	139	158

The nature of the tasks performed by those who actually worked was varied. Nevertheless, by far the greatest percent helped with the distribution of food and clothing, with the latter employing the most. Thus, 13 percent of all non-impact cases did work in connection with receiving, sorting, fitting and distributing clothing to the needy and five percent of the impact cases did the same. As for food preparation and distribution, five percent of the non-impact cases and one percent of the impact cases helped in that connection.

One may expect that appeals over the radio and in newspapers would be the most effective way of persuading persons to volunteer their time and labor. Actually, this was not the case. Of those indicating how they got into volunteer work, the highest percentage said they volunteered without appeals from mass media and volunteered primarily out of a personal desire or feeling of obligation to help. The next highest percentage of volunteers indicated that they became involved in relief work through personal appeals from informal sources (friends, particular known others, etc.). None of the impact cases and only one percent of the non-impact cases reported that they volunteered because of appeals over the mass media of communication.

Evaluation of Formal Relief Aid by Regular Respondents

Like the special respondents, the persons interviewed in the regular sample frequently expressed evaluations of the various aspects of the relief effort and made comparative evaluations of the organizations engaged in the distribution of relief supplies and services. The Red Cross and Salvation Army were the most frequently mentioned agencies, and the table below indicates how these two organizations were compared.

Table 5-17

COMPARATIVE EVALUATIONS OF RELIEF ORGANIZATIONS

Evaluation	Percent of All Persons	
	In Impact	Not in Impact
Both Red Cross and Salvation Army did well	40	31
Salvation Army did better than Red Cross	16	7
Red Cross did better than Salvation Army	1	1
Both organizations performed poorly	—	—
Other organizations did better than either or both Salvation Army and Red Cross	1	—
No comparative evaluation reported	43	60
Number of Interviews	139	158

It will be noted, first, that the impact population made comparative evaluations more frequently than the non-impact population, and that the highest percentage of the population in both areas reported that they felt both organizations did well. The relatively high satisfaction with the relief effort is reflected in the fact that none of the persons who commented on the two organizations felt that both performed poorly. There were many favorable comments of the following type:

> I tell you the Salvation Army and Red Cross was wonderful to us. They give 'em food and clothes and bedding—things like that. That's a wonderful job to do all that for those people here. People should really appreciate that because that's really helped. (Case A-322, p. 20)

> They say that the Red Cross and Salvation Army just done a wonderful job—couldn't done any better I don't guess. (Case R-238, pp. 7-8)

The generally favorable evaluation of the two organizations is also reflected in the fact that only one percent of the persons in impact and none in non-impact reported that they felt other organizations (churches, etc.) performed better than the Red Cross or Salvation Army.

It will be noted that a relatively high percentage of the impact population (as well as some of the non-impact cases) reported that they felt the Salvation Army did better than the Red Cross. The highly favorable attitude toward the Salvation Army is reflected in the following quotes from the interviews:

> The Salvation Army has done a wonderful job. I think anybody should always donate to the Salvation Army; they're just a wonderful organization. (Case R-138, p. 16)

> The Salvation Army did a wonderful work. They are smaller and can't do as much in a big way as the Red Cross, and they don't stay on the ground afterwards and help with the rehabilitation, but they did do a wonderful work. (Case R-342, pp. 7-8)

A few respondents were highly critical of the Red Cross, as indicated in the following two cases:

> The Salvation Army done some awful good work here, I'll tell you. You just can't beat them I don't think. /But/ the Red Cross ain't worth 15 cents for my money. They don't do nothing for you. You go up there and tell them your life history, sign your name to a bunch of lies, they might do something for you. (Case R-346, p. 20)

> Took too long for the Red Cross to get to the people, after that money's been sent in. (Case R-334, p. 8)

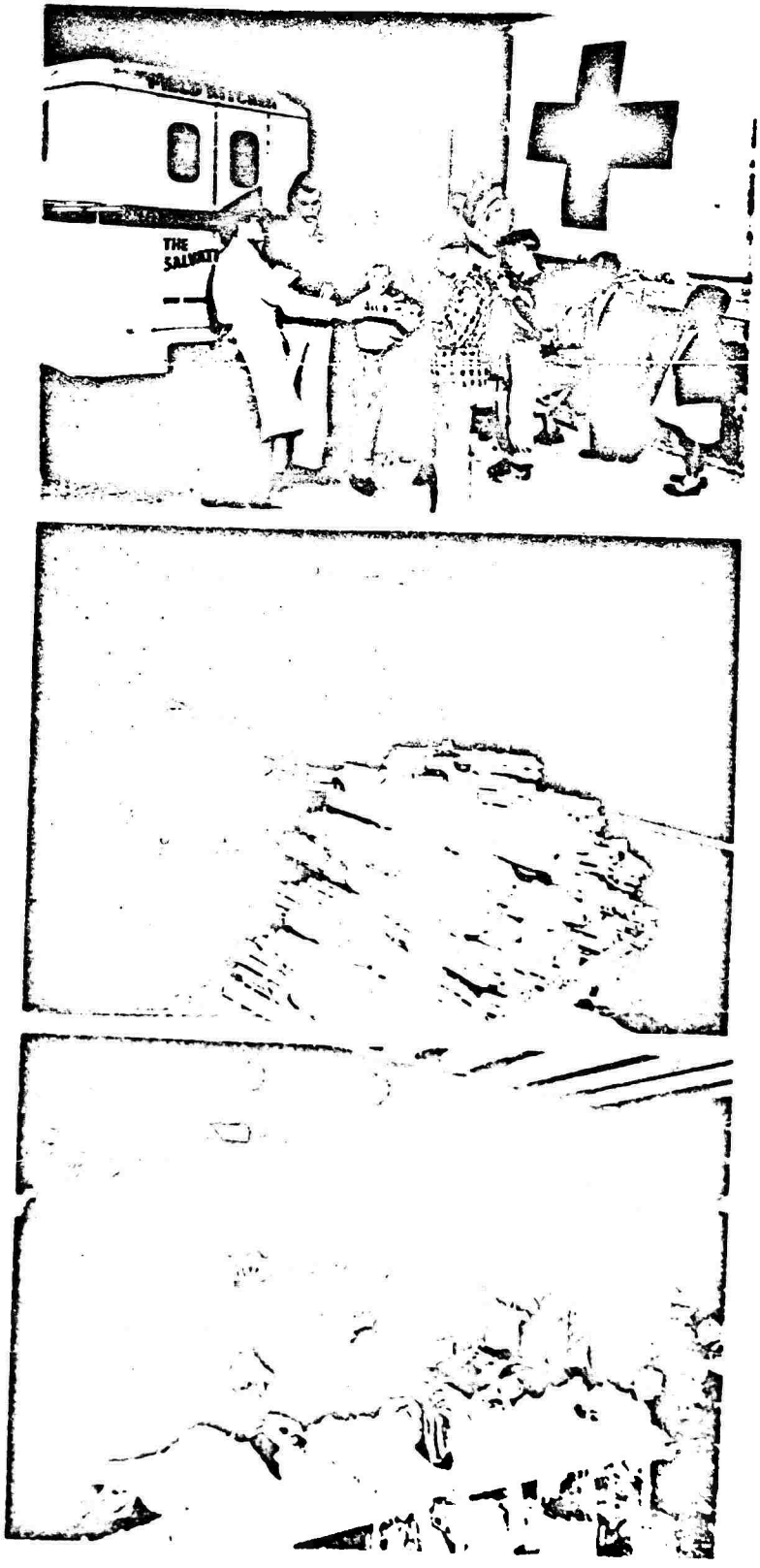
Table 5-18

ATTITUDES TOWARD RED CROSS AND SALVATION ARMY

Attitude	Red Cross Percent of All Persons		Salvation Army Percent of All Persons	
	In Impact	Not in Impact	In Impact	Not in Impact
Positive: Organization was:				
Efficient, effective, well organized	19	14	22	10
Fast in getting to the scene	13	8	28	7
Admirable in its personnel: sympathetic, tactful, etc.	4	1	18	5
Fair, equitable in its services	3	1	3	2
Other positive comments	2	5	--	4
Negative: Organization was:				
Inefficient, ineffective, badly organized	4	5	—	—
Slow in getting to scene	3	2	—	—
Disagreeable in its personnel: unsympathetic, tactless, etc.	7	5	—	—
Unfair, unjust in its services	8	5	—	1
In conflict with other organizations	2	3	—	2
Other specific negative comments	7	6	—	—
No attitude expressed	53	65	53	78
Number of interviews	139	158	139	158

Table 5-18 above presents more specific data on the positive and negative attitudes toward the Red Cross and Salvation Army. This table shows, again, that the impact population were more likely to have formulated subjective orientations and positions with reference to relief organizations than the non-impact population—a fact that is understandable in terms of their ego involvement with the dispensation of relief aid and their contacts as recipients of aid. It will be noted that the positive responses toward both organizations outweighed the negative responses, indicating that most persons were relatively satisfied with the performance of the two organizations. However, several additional points should be noted in the preceding table:

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1. The impact population tended to report favorable attitudes attitudes toward the Salvation Army more frequently than toward the Red Cross.

2. Both the impact and non-impact population criticized various aspects of the Red Cross, but criticism of the Salvation Army was completely absent among the impact population and virtually non-existent among the non-impact population—a fact which attests to the high regard in which the Salvation Army was held by the entire population.

3. A comparison of the specific items of favorable comment among the impact population indicates that the Salvation Army received over twice the amount of praise that the Red Cross received for its speed in getting to the scene, and over four times the amount of favorable comment with regard to the personal qualities of the personnel. The most frequently mentioned negative comments on the Red Cross by the impact population concerned the inequitability of its services, the personal qualities of its personnel, and other negative comments.[1]

The previous table indicates a slight tendency on the part of non-impact areas to praise the Red Cross more frequently than the Salvation Army. A further analysis of the evaluations of the various relief organizations by areas confirm this. The interview data were coded in terms of overall evaluations concerning the organizations which did a "good job" and those which did a "poor job," and a cross-tabulation of these codes by areas gave the results as shown in Table 5-19. This table shows that the Red Cross consistently received a higher percentage of favorable response in non-impact areas than the Salvation Army, and, conversely, the Salvation Army tended to receive a higher percentage of praise in impact areas (with the exception of Judsonia-rural impact areas where both organizations received an equally positive response). The residents of Judsonia (impact area) and Searcy (non-impact area) more frequently praised all organizations than did the residents of other areas. This is probably due to the unique position of both communities with reference to relief activity in general. Judsonia, being the hardest hit area, was the major recipient of aid from many organizations. Searcy, on the other hand, was the main center for the distribution of organized aid. The residents of both communities, therefore, were more likely to have direct contact with the entire organized relief program than was true in other areas.

Table 5-19 also shows that the Red Cross was the only organization singled out for overall "poor job" evaluations by the respondents. Again, however, the percentage of such comments was relatively low in relation to the percentage of persons who gave overall favorable judgments.

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[1] The "other negative" comments included references to being too slow in dispensing aid; too much "red tape" or bureaucratic procedure; insufficient aid; too much publicity and attempts to take credit; mercenary motives, giving wrong information in telegram to relatives, etc.

Table 5-19

EVALUATION OF ORGANIZATIONS BY AREAS

Organization and Attitude	Percent of All Respondents					
	In Impact			Not in Impact		
	Percent of All Persons In			Percent of All Persons In		
	Judsonia	Judsonia-Rural	Doniphan	Judsonia-Rural	Searcy	Bald Knob
Good Job						
All organizations	58	39	29	44	63	35
Red Cross	59	50	71	77	60	70
Salvation Army	72	50	76	58	56	40
Local agencies	30	32	12	21	34	20
Poor Job						
All organizations	—	—	—	—	—	—
Red Cross	8	14	6	—	12	—
Salvation Army	—	—	—	—	1	—
Local agencies	—	—	—	—	—	—
No attitude expressed	8	21	12	5	14	15
Number of Interviews	86	28	17	43	104	20

Many respondents made evaluative statements about types of relief services rendered without necessarily referring to an organization. The following table categorizes the major goods and services rendered by formal organizations and indicates those that were evaluated as "well" performed and "poorly" performed.

Table 5-20

EVALUATION OF ORGANIZATIONAL ACTIVITIES

Type of Goods or Service Provided	Percent Reporting Activities Performed Well		Performed Poorly	
	In Impact	Not in Impact	In Impact	Not in Impact
Food and beverage	68	39	1	—
Clothing	50	50	2	3
Household furnishings	22	18	2	1
Medical-hospital care	9	8	—	—
Advisory and Counseling service	1	1	4	1
Informational services	4	2	1	—
Home repair or replacement	2	7	6	—
Immediate temporary shelter	12	6	1	2
Semi-permanent housing	10	6	2	1
Money	5	3	1	2
Other specific services	7	5	1	2
No evaluation of this type	26	34	88	91
Number of Interviews	139	158	139	158

Considering first the activities that were praised, it will be noted that impact cases were generally more likely to praise all activities than were non-impact cases, with the sole exception of activities surrounding home repair or replacement. The largest percentage of the impact cases singled out the distribution of food for praise, followed by clothing distribution and the provision of household furnishings. Non-impact cases singled out clothing distribution for praise most frequently, followed by food and household furnishings.

A relatively small percentage of persons in both areas mentioned activities as "performed poorly." The incidence of criticism was low for both groups and for all activities. However, the service or activities receiving the highest amount of critical comment by impact cases was home repair or replacement and advisory and counseling services. For non-impact cases, clothing distribution was mentioned as poorly performed most frequently. The criticism of home repair and replacement can probably be explained by the

frustrations over delays in getting the needed repairs and, possibly, by the false hopes built by the respondents' interpretation of Red Cross statements concerning rebuilding. Much of the Red Cross advisory activity was done in connection with the assessment of damages and the determination of rehabilitation needs, and a number of respondents expressed the view that the Red Cross was taking too long in "getting started." For example, one respondent said:

> We haven't had a bit of free labor from anybody. We got just about all we needed, really, except the buildings—help getting our buildings back. They [Red Cross] said they was going to do something. Never brought nothing yet...so they ain't done nothing. (Case B-[illegible], p. 13)

The small amount of criticism by non-impact cases of clothing operations referred mainly to their experience with the initial confusion and inefficiency that occurred in connection with the distribution of "mountains" of clothes and the occasional receipt of clothing aid by "relief stealers" or persons whom the respondent felt were not entitled to such aid.

DESCRIPTION OF INFORMATION OPERATIONS

One of the most important conditions for orderly and adequate conduct in stress situations is generally accurate and sufficient knowledge or information. In disaster situations, we often find that, in the face of drastic changes in the situation, information about these changes is not to be had, or is untrue, or too scanty, or exaggerated. A point may be reached where even true information is disbelieved, if the sources of information are suspect or if so much untrue information has made the rounds that the person will not accept it. The sources of information vary from officials to unauthorized strangers. It can be expected that where authoritative information is demanded and not forthcoming or is untrue or simply inadequate, non-authoritative information will be supplied to persons in need of it—in rumor, half-truth and in fabrication—by all kinds of sources.

In its wake, the tornado did considerable damage to the technical facilities of communication—destroying some and seriously impairing others. The destruction of the local electric power units blocked radio reception in the impact area. The destruction of the nearby Searcy radio station tower prevented, for several days, the sending of emergency appeal messages.

Very shortly after impact, a news bulletin was sent out by the Little Rock radio station to the effect that Searcy had been struck hard by a tornado killing 21 persons. Perhaps more than any other single factor, this erroneous announcement was responsible for the clogging of highways throughout the county, for the overloading of telephone and telegraph lines, and for the general confusion resulting from mis-shipment and delay in shipment of needed supplies. With the Searcy station off the air and telephone calls restricted, there was little opportunity in the first few crucial hours to dispel the error in the original report.

Telephone facilities in the various impact areas were completely wrecked, throwing the great burden of emergency calls upon the limited facilities of the Searcy circuits. With normal radio and telephone channels temporarily disrupted or curtailed and with an overwhelming and ever increasing need for sending and receiving information, burdens were placed upon less suitable channels—the road networks, for example. Roads quickly became clogged—not only by sightseers but by official and semi-official dispatch vehicles with requests for aid and information. Amateur radio operators arrived on the scene and gave relatively effective help in summoning aid and broadcasting news. Several individuals also arrived with loudspeaker equipment to help organize cooperative efforts and to allay fears.

Telephone Communications

Several small towns and adjacent rural areas were completely denuded of telephone facilities and in need of aid and information. As one telephone executive put it: "People just seem to reach for the telephone when something comes up. They seem to pick up the phone first." The nearest useable phones were in the larger town of Searcy several miles from the impact areas, and most of its toll lines to other communities were cut. Fortunately the telephone company was able to call out for an emergency power plant and was therefore better able to meet the needs of the several relief and control agencies. The volume of in-coming and out-going calls was so great that, for a time, strict control was imposed and the switchboards handled only "calls either for death messages or requests for aid." Of course, what constituted emergencies in this sense automatically precluded the messages that many persons wanted to send concerning family matters—most urgent to the individuals involved. Thus, the same telephone executive explained:

> The circuit shortage and so many people trying to place calls, hindered us most. The rumor that Searcy had been hit made many people want to call out to let others know they were all right.... If people couldn't get a call in, they would think...that it was true that Searcy really had been hit, and this caused more confusion. (Case S-22, p. 9)[1]

The emergency period, so far as the Searcy area was concerned, ended 48 hours after impact and the switchboard began to take non-emergency calls as the circuit loads decreased. But for those in the impact area itself—Judsonia, Bald Knob, etc.—phones for non-emergency use were unavailable for more than a week despite the peak need for such communication facilities.

The telephone exchange in Searcy did more than function simply as an impersonal switchboard. Its individual operators, spontaneously or under orders, entered directly into interaction with persons requesting instructions on how to help, seeking information, offering supplies, and offering

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[1] A similar overloading of telephone facilities has occurred in virtually every disaster studied by the NORC team. For other examples, see the Brighton, New York, disaster report, and the Minnesota Mining and Manufacturing Company plant explosion report, (Appendices B-2, B-6).

information and advice of benefit to relief agencies and control authorities. The operators, in turn, initiated calls to nearby residents and to more distant points requesting supplies, advising and otherwise alerting persons and agencies to the specific needs of the stricken area.

> We were the main center for everything in town for what happened. People came in and would ask for things. A person would come in and say, 'I want a bulldozer,' or 'I want some blankets,' or 'where do we take the wounded?' We notified the Red Cross of many of these requests and other appropriate agencies. The hospitals called for lights. The operators would call right down the line on the list of subscribers and ask people to send things down. Places called to ask where they could take bodies...We had our emergency power plant. This gave us plenty of light with the town in darkness. I guess that having our place lit up attracted people to us. They saw the lights on and came over.... Townspeople called to ask what they could do. We kept posted where they could be used, and sent them out to different places that needed them. (Case S-22, p. 1)

When the activities of those connected with the telephone exchange are viewed as a whole, it becomes apparent how important the control of the physical facilities of mass communication can be in structuring the course of developments during a disaster sequence.

Radio Communications

It might have been possible for normal radio communication to have taken some of the load from the impaired telephone system but, with the knocking out of the power plant, radio reception in the impact area was seriously curtailed. Radio reception was not entirely cut off since persons in the area were able to use car radios and, although the Searcy radio tower was destroyed, distant and more powerful signals could be received. But static was heavy and little news could be obtained in this way. In any event, news from distant stations was of relatively little value at first, since few details regarding the local situation were accurately known to such stations. In the meantime, the local station was making an effort to resume normal broadcasting.

It was not until several hours after impact that the Searcy station manager was able to get a call through asking for new equipment. Radio service was not restored to the area until the fourth day following the storm, but, once on the air, the station was able to broadcast for twenty-four hours a day by permission of the FCC. For a short time the station helped the relief programs of the Salvation Army and Red Cross by releasing organizational announcements such as listing the injured and missing for the purpose of contacting distant relatives. The radio station also cooperated with the State Police by periodically broadcasting appeals to would-be travelers to keep off the local road-nets. The station management began a fund drive for the victims and was able to raise $2700 in four days of operation.

Emergency Radio Communications

In view of the curtailed telephone and radio communications, it was fortunate that the state had a small but well organized unit of "ham" radio operators. Several of the members of this unit had had previous disaster experience and were prepared by prior arrangement with the Red Cross to help with emergency communications. Within a few hours of impact, several "ham" operators had set up a headquarters station in Judsonia and had established a network of mobile units able to reach the state capital. The operators remained on the job for several days, appealing for medical supplies, work crews, clothing, etc., and, in between such priority demands, sent out personal messages concerning deaths and injuries. An amateur radio periodical, QST, issued in June, 1952, described some of the details of events in Judsonia from its own special point of view:

> Red Cross and town officials assisted in setting up a routine and priority system for outgoing traffic. Persons wishing to send messages had to file them at a desk set up for that purpose, although medical and Red Cross personnel filed theirs in the radio room for priority handling. ...The only means of communication, this station handled traffic for Red Cross, Western Union, U. S. Post Office, National Guard, Salvation Army, Weather Bureau and the Governor. ...The total traffic handled by W5DV1/5 was 422, of which 277 was outgoing.

In addition to equipment provided by the amateurs, the State Police had facilities for sending and receiving radio messages. Both the "ham" operators and the State Police attempted to establish regular networks whereby individual radio units were strategically placed throughout the area and on the road leading to the state capital, some 50 miles away. This was done to help compensate for the relative weakness of the message sending signals. Both were considerably hampered, however, by the great amount of static in the aftermath of electrical storms throughout the area and, consequently, the network system was not as successful as it might have been.[1] Nevertheless, available emergency radio service fulfilled a vital function, considering the needs of the various communities and the curtailment of destruction of other communications facilities.

Public Address System

For many hours following impact, there was a considerable amount of confusion in the heart of the town of Judsonia—the hardest hit impact area. Sightseers poured in and other well-meaning persons mulled about in the darkness. Traffic became snarled time after time with persons seeking relatives or hoping to be of aid to the victims. The chaplain of the local National Guard Regiment resided in Searcy and had in his possession a loudspeaker system on his car. Arriving on the scene within an hour of impact, and stationing himself at a busy intersection in the middle of the town, the chaplain began working to clear up the confusion. Following are some of his remarks:

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[1] Some static-free FM radio equipment was available to the State Police and State Game Commission. These mobile units proved to be most effective.

> ...I began to clear the traffic—at least make room for ambulances and to warn people to go on through the intersection and not park and then someone rushed up and asked if I'd issue a call for some individual who was apparently lost and from then on until the next morning about two-thirty I stayed on the microphone, directing people to the aid station and serving as a sort of a general headquarters. I sent out a call for flashlight batteries and people began to respond.... It seemed to give some focal point to which people could come and make inquiries and transmit news.... I didn't drag out any wounded—because I felt like I was doing more good there, serving as a central information agency and broadcasting....[1] (Case S-22, pp. 2-3)

Newspapers

In spite of the power shortage, the single Searcy daily newspaper came out with its regular afternoon issue on the day following the tornado. Though restricted in size, the paper was able to report the essence of the news regarding the previous day's activities and events. By this means, its readers were able to focus both upon the larger picture and upon the details regarding deaths, injuries, and specific points of destruction. With its relatively wide circulation in the county, the paper was able to dispel the story about death and destruction in Searcy. In the words of the editor:

> Since we're a member of the Associated Press, when they came in here, we got a lot of their information, and all of us working together enabled us, I think, to handle the job in a very fair way. I think we gave the people the information they wanted. And the call for papers and a list of the dead and injured, well, it's been unbelievably high. In fact, we sold more than 600 papers on the street that /Saturday/ afternoon. (Case S-25, p. 6)

Many of the respondents from the impact areas were evacuated or otherwise established new temporary residences. This hampered regular newspaper delivery for several days. About one-fifth of respondents in the Judsonia-rural areas reported the disruption of newspaper delivery. Nevertheless, there was considerable evidence that newspapers were passed around from family to family.

Major Sources of Information for the General Populace

With several important community-wide channels of communication impaired or curtailed for varying lengths of time and with news in great demand, the individual utilized as many news sources as he could reach.

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[1] Evidence of the relative effectiveness of public address systems is also available in the report on the Flagler, Colorado airplane disaster (Appendix B-1).

This is not to say that all respondents sought news sources--some stated they deliberately avoided seeing or hearing about certain events which they felt were too upsetting. Nevertheless, most respondents sought information about the disaster in general or about many smaller items of information. Table 5-21 indicates what the single major source of such information was for the impact and non-impact cases.

Considering the table as a whole, it is obvious that for most persons, the mass media were not major sources of information. This may have been due to the curtailment of radio broadcasting and reception and to the slowness of news dissemination by newspaper. This does not, however, seem to be the only factor involved in the reliance upon personal contact as a news source. Although most persons in the Searcy (non-impact) area were able to hear their radios a very few hours after impact, word-of-mouth was a far more important source of information than were mass communication media.

Table 5-21

MAJOR SOURCE OF GENERAL INFORMATION CITED BY RESPONDENTS

Source of Information	Percent of All Persons	
	In Impact	Not in Impact
Personal contacts	69	71
General or unspecified others	26	36
Known others	28	27
Direct perception by respondent	15	8
Newspaper	6	11
Radio	1	8
Source unreported	24	10
Number of Interviews	139	158

The percents citing radio as a major source are quite small and undoubtedly reflect the complete disruption of electrical power in the impact areas, and its curtailment in other areas. Several respondents reported having used their car radios for some time during the evening of the storm. The importance of the newspaper exceeded that of the radio for both impact and non-impact cases. Still, the figures for all mass media are low by comparison with the word-of-mouth categories. It is likely that as time went on the importance of the newspaper increased. Nevertheless, for the first several days, most individuals, being physically close to the disaster scene, could either visit the scene themselves--if they were not there already--or speak with persons who had been there.

Content of Information

Despite the small percentages of persons citing the mass media as primary information sources, it does not necessarily follow that the mass media were altogether unimportant in the dissemination of information. Many respondents leave no doubt as to the importance of mass media—especially in summarizing the many discrete bits of information that make up a total disaster situation. Data gathered on the content of information derived from the mass media indicate that 34 percent of non-impact cases and 12 percent of the impact cases learned about the extent of destruction and casualties from the newspapers. An additional 13 percent of the non-impact and five percent of the impact cases got similar summary accounts from radio. It is interesting to note, in this connection, that a greater percent of non-impact than impact cases reported getting such summary information from the mass media. Perhaps distance from the disaster scene combined with less disruption of informational channels would account for the differences. However, a large percent (56%) of the impact cases did not indicate the sources of information on the scope of the disaster.

The newspapers provided respondents with certain kinds of detail which could not readily be supplied by informal means. These included such information on the storm as would be included in scientific accounts—causes and characteristics of tornadoes, differences between tornadoes and other types of dangerous atmospheric conditions, etc. For information of this kind, 29 percent of non-impact and 15 percent of impact cases cited the newspapers. Radio was cited as providing such information by 15 percent of non-impact and five percent of the impact cases.

Another kind of information frequently mentioned as being sought for, was that pertaining to the identity of persons killed and injured. Here it would seem, that the mass media were in an excellent position to gather and report casualty lists. Yet, relatively few respondents reported getting such information from the mass media:—about 10 percent noting newspapers as a source and three percent mentioning radio, with no difference of any note between impact and non-impact cases. Information on rescue, first aid, and relief activities was received from newspapers by 13 percent and four percent of the non-impact and impact cases, respectively, from newspapers, and the same type of information was reported as provided by radio to four percent of the impact cases and 15 percent of the non-impact cases. It may be noted that the newspaper seemed to loom up considerably larger than radio as a source for all types of information.

Accuracy of Information

Considering the amount and variety of reports on what had occurred or was yet occurring, it should not be surprising that many respondents reported receiving information that was contradictory or untrue. Of those giving information on the relative accuracy of news sources, most were inclined to rate them as "generally accurate," with non-impact cases being somewhat more inclined to do so than impact cases. Few considered all sources as entirely accurate or entirely inaccurate. By comparing accuracy

ratings of mass media as against all other sources, we found that non-impact cases were more inclined to rate the mass media as "generally accurate" than were impact cases. It follows then, that non-impact cases seemed to have more confidence in all news sources than did impact cases.

As to the particular topical items found to be unreliable,—i.e., items disbelieved or found to be false—the largest percentage of those reporting, singled out "particular persons killed or injured" and "extent of damage." There was apparently a great deal of confusion with regard to the reporting of dead and injured both by the mass media and by other sources. The erroneous placement of a single name on a death list, in an area where residents have many social ties and can recite the names of dozens of persons, may very well have caused great consternation and stimulated skepticism with respect to the accuracy of news sources.

Of those giving information on how news was discovered to be false or exaggerated, most cited "direct perception" to the contrary as the main means—30 percent of the non-impact and 20 percent of the impact cases. Many of the Searcy (non-impact area) respondents recounted the incident of the Little Rock radio station reporting considerable destruction in their own town, as evidence of inaccuracy in news dissemination. Next to contradiction by direct perception, the respondents cited reports from particular known others as a means of discovering the falsity of certain reports. While the original "false" reports did not necessarily come from the mass media, very few respondents cited the mass media as a means of correcting the circulation of false information. One may very easily expect that the mass media, next to official pronouncements, would be the sources most looked to for the dispelling of rumor and error. Yet, the contrary seemed to be the case; that is, regardless of the source of inaccuracies, the population was more likely to learn of the error in the news from informal, word-of-mouth sources. A sizeable portion of the population—10 percent of the non-impact and five percent of the impact cases—reported hearing so many contradictory stories about particular topics, that they said they would not or could not believe any of them.

Interpersonal Communications

We have been discussing the distribution of information in a manner suggesting that news about people and events consisted of relatively abstract bits of information of minor importance to the residents of the stricken area. Actually, much of the information was of extreme importance, for upon it often hinged the answer to vital questions. News or information about kin, for example, was of extreme importance in this situation. One's own and/or a nearby community had been struck a devastating blow; normal lines of communication were broken or impaired; relatives, living at varying distances might be in great need of help. Moreover, national news services had flashed the word to different parts of the country and it often became of great importance for the victims to reassure relatives about the situation. In the meantime, relatives and friends themselves were trying to establish some means of communication with the victims. Many respondents gave rather vivid accounts of their efforts to reach particular individuals—in person or by some other standard means.

Table 5-22 deals with the problem of how respondents and their kin tried—not necessarily successfully—to reach each other. The table does not indicate the great amount of searching behavior done by respondents within their own particular area. Nevertheless, face-to-face contact figures indicate a considerably greater influx than outflow from the impact areas. This is wholly in line with what we know about the heavy traffic toward the impact areas from all directions. For one thing, kin at a distance were generally better able to travel. Then too, the impairment of normal communications and the erroneous reports about the extent of damage spread through the county, state, and country, and provided conditions for great concern and movement to the stricken areas. By comparison with the percent of outsiders who attempted face-to-face contact with the impact respondents, the 12 percent of the impace cases who attempted face-to-face contact is relatively low and probably reflects the special conditions confronting them, e.g., lack of transportation, concern over property, etc.

Table 5-22

MEANS USED BY RESPONDENT AND KIN TO COMMUNICATE WITH EACH OTHER

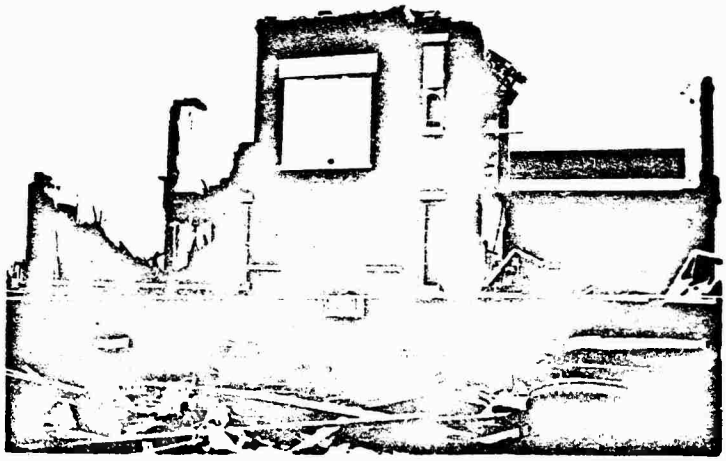
Means of Communication	Percent of Persons In Impact	Percent of Persons Not in Impact
Used by Respondent to Communicate Outside Own Area		
Face-to-face contact	12	19
Telephone and/or telegraph	10	19
Formal relief and/or control agencies	3	—
Indeterminable (but did attempt communication	4	3
Used by Outsiders to Communicate with Respondent		
Face-to-face contact	52	31
Telephone and/or telegraph	3	21
Formal relief and/or control agencies	4	4
Indeterminable (but did attempt communication)	5	2
No attempt to communicate reported	38	43
Number of Interviews	139	158

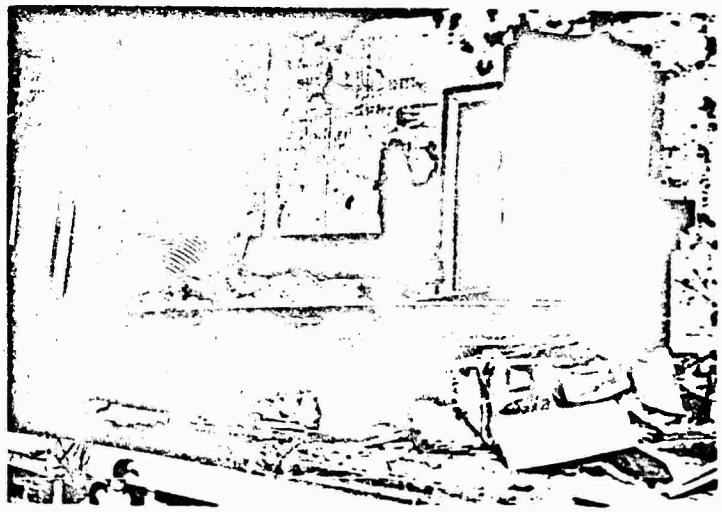
Next in importance as a means of communicating with kin was telephone and telegraph. Notable is the larger percentage of non-impact cases and their attempting use of these media, than impact cases, both for outgoing and incoming calls and messages. Telephone communications broke down for a time in impact areas and telegraph facilities were very limited relative to the need for message sending. While non-impact cases had only limited facilities, they nevertheless had relatively better opportunities for message transmission.

With respect to outsiders calling or telegraphing in an attempt to reach impact cases, the percentage reported is low, possibly because there was a tendency to report such attempts only when they were successful. In any case, the figures attest to the relative isolation of impact cases from other than face-to-face means of contact.

As would be expected, impact cases made greater use of relief and control agencies as media of communication than did non-impact cases. Generally, requests were made of these agencies to transmit personal-family welfare reports to distant kin. The agencies, in turn, sent personal messages to telegraphic centers via "ham" radio. There may have been considerable distortion in the reports by respondents—especially impact cases—as to the exact means of communication. For a few days following impact practically all media for personal communications were severely restricted or non-existent. During this time, the "ham" operators handled hundreds of incoming and outgoing personal welfare messages. But the respondents themselves may not have known this, since either the relief agencies handled the matter entirely so far as the respondent was concerned or the respondent felt he was sending "a wire." The fact was, that most such personal welfare messages were wired, but via amateur radio to the nearest telegraph office. Incoming messages may also have been credited to telegraph rather than to radio or to both.

JUDSONIA







DESCRIPTION OF COMMUNITY SERVICES OPERATIONS

When the tornado struck most public and community services were disrupted for varying lengths of time. Electric power, and gas and water supply to the different communities was interrupted. Roads and highways, and the railway tracks traversing the impact area, although suffering very little damage in themselves, became blocked by debris and wreckage. Public buildings and business establishments were destroyed. Generally speaking, the utilities, the transportation system, and the physical structures of the business community and of the agencies of the local governments, were all to a considerable degree affected by the tornado.

This section will describe the more salient aspects of the operations, disruptions, and restorations, of the most important of the community services.

The Electric Power

The Arkansas Power and Light Company furnishes electric power to all of the communities in White County. According to the company records, in March of 1952, it serviced about 11,000 customers in its northeast division which includes Searcy and the surrounding area. Three substations, one at Searcy, one at Bald Knob, and one at Judsonia, distributed the power to users in the area.

When the storm struck, in addition to knocking down transmission lines, it damaged or destroyed all three substations. The station at Judsonia was completely destroyed. As an official of the power company reported:

> Our entire distribution circuit in Judsonia where there is more than 300 customers was wiped out. Nothing left. (Case S-39, p. 3)

The substations both at Searcy and Bald Knob suffered very heavy damage, the tornado having knocked down the steel beams of the transformers. Such heavy damage and destruction to the substations was considered by some company officials as somewhat unusual even for a tornado. Apparently most storms and tornadoes primarily affect transmission lines rather than the transformers in the substations themselves.

As soon as the power company discovered its services were disrupted it put its standard emergency plans into operation. This involved, first, locating the main sources of trouble, and, second, moving men and equipment into the area to deal with the problem spots. The immediate goal was to restore service to the substation transformers. In the present case, this involved not only the usual storm-necessitated repairing of transmission lines but also the repairing of the transformers themselves. Bushings for the transformers had to be obtained from the general office at Pine Bluff. Most of the other needed material apparently was available from the district's

standard emergency supplies.

Limited electric power was restored to Searcy by midnight, or approximately five and one half hours after the tornado had struck. This was done by bringing in power from an unaffected substation at Heber Springs, which is in another county. Work was focused on restoring service to the water system and restoring power to the hospitals. Early Saturday morning employees of the power company personally contacted many of the larger power users (e.g., plants, etc.) to ask that they limit their electric usage. This appeal was substantially complied with, permitting the full servicing of the water system and the hospitals. Full electric power service was eventually restored to Searcy by 7:30 P.M. on Saturday, or about 24 hours after the tornado had hit.

Service was restored to Bald Knob by bringing in power from an unaffected substation at McCrory which is in another county. Full service for all who could use it had been established by late Saturday night. An area north of Bald Knob remained unserviced for a day or so longer.

At Judsonia the distribution system was torn up so badly that apart from power obtained through portable generators, even limited service was not restored for four days. However, company officials noted that, in part, this was because they had concentrated on the other towns where there were customers (in addition to the water system and the hospitals) that needed service. In Judsonia, so many houses and businesses were destroyed or severely damaged, that there were not many buildings that could have used electric power. It was about 10 days before power was fully restored in Judsonia.

With one exception, there was no major or unusual problem involved in the restoration of electric power. The one problem was in regard to heavy traffic on the highways, on Sunday. This so slowed the movement of personnel and equipment that the company was not able to restore power to one area north of Bald Knob until a day later than originally scheduled. As one official said:

> One of our biggest problems in this area here was the congestion on the highways. In fact, we would have had service restored a day sooner if we'd been able to get our equipment up and down the highway. But so doggone many people came up here the following Sunday--just curiosity seekers--that we were materially handicapped the entire day. There were just miles of those fellows that just didn't want to do anything except look, and it did interfere with our work a great deal. (Case S-39, p. 16)

Another official said:

> Our major problem was traffic and sightseers. The traffic was so heavy...that we just couldn't move...Our trucks and repair crews were being bottled up on the roads all along. I don't blame the police mind you...the state and local police

were good people to have around. They did good work in trying to keep the roads clear. They were doing the best they could, but the roads should be blocked up to keep out people. (Case S-18, p. 3)

The Gas Supply

Judsonia and Bald Knob were the only towns in White County (in fact, in Arkansas), that had any disruption in their gas systems. Actually, this was somewhat unusual since tornadoes ordinarily do not affect gas service. As one gas company official noted:

> Normally you wouldn't expect that a gas company would have any damage from a storm. But in this particular case the houses were destroyed and pushed down over the meters and broke them--the meter risers--and broke down the meter risers so that all the gas piping was broken loose there. And gas would have been loose there in all those homes and all the wreckage, and if one of them had gotten on fire, the wreckage gotten on fire...it would have been a very serious hazard. So it required some very fast work on the part of our boys in getting the gas service cut off at the main city gate to avoid the possibility of a fire or explosion or anything there in town. We're awfully happy to say there was not one casualty or one fire that could be attributed to gas service there. (Case S-1, p. 1)

The fact that even with escaping gas no fire broke out is probably due to three factors: (1) The very heavy rain soaked everything and made it very difficult for anything to burn; (2) The electric power being out and all open flames (e.g., candles, open fireplaces, etc.) having been snuffed out as a result of the impact of the tornado itself, there was nothing to spark a fire or an explosion; (3) The houses having collapsed or being badly damaged, there was little possibility of pockets of gas accumulating. The gas was dissipated into the open air.

A concise summary of the operations of the gas company is given in the following official report.[1]

> The storm struck Bald Knob, Friday, March 21, at approximately 5:50 P.M. Two men [local residents who were employees of the gas company] were on the scene. It was soon apparent that sufficient Gas Service Lines were open to create a hazard and it was necessary to close off the gas supply to the town. This was accomplished at 6:10 P.M. by closing the main gate valve at the city border station.

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[1] Midsouth Gas Company Intra-company correspondence of March 26, 1952.

Emergency crews began arriving from Jonesboro, Newport, Batesville, Searcy, and Walnut Ridge by midnight and all individual meter stops were closed by 6:00 A.M. Emergency repairs were completed by 9:00 A.M.

At the request of city officials, gas pressure was kept off until fire fighting equipment arrived from Augusta and Searcy. Gas pressure was restored at 10:00 A.M. and servicemen began turning on meters. All persons desiring service were back on by 3:00 P.M. Approximately seventy-five locations could not accept service immediately...Sunday morning gas service in Bald Knob was normal.

Judsonia was struck a few minutes before 5:50 P.M., Friday, March 21, and all metering and regulating equipment was destroyed. High pressure gas was released at the town border station and gas pressure in the distribution main was low. Hundreds of service lines were broken and blowing.

/The two servicemen previously mentioned/ left Bald Knob at 6:10 P.M. and drove through the debris to within one-half mile of the Judsonia Regulator Station. They proceeded from there on foot through the darkness and over wreckage and closed the main gas valve at 6:55 P.M.

/Crews/ began rebuilding our regulator station at daylight Saturday morning and Mississippi River Fuel Corporation crews [1] began repairs to their equipment. Maintenance crews from the Bald Knob job /going to Judsonia after they had finished in Bald Knob/ began closing the distribution system at noon Saturday. The system was valved off through districts, the first of which contained 80 percent of the residential district.

All crews were on the job at 6:00 A.M. Sunday morning. Approximately forty Midsouth Gas Company men were involved.

At 1:00 P.M. the Mississippi River Fuel Corporation had completed their emergency repairs. With the aid of their mobile radio equipment, remaining openings were located and reported. The first district was closed at 3:00 P.M. and service was available to 80 percent of the town.

Monday morning bulldozers began clearing the debris from the business district, followed by our crews. The remainder of the town including the wrecked business district was back on by 6:00 P.M. Monday and gas service was available to all locations able to accept service.

The fact that the gas in the two towns got shut off quickly was partly attributable to chance factors. The two gas servicemen who turned

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[1] An organization which worked with the gas company.

off the main valves both in Bald Knob and Judsonia were there because they happened to live in one of the towns. They acted on their own responsibility after they saw the potential dangers that were involved.

The gas company itself had never anticipated extensive damage resulting from storms or tornadoes. As one official noted:

> Now it never has in our wildest expectations occurred to us that we would ever have any cyclone or storm damage...I never heard of a gas company that had a lot of storm damage like this...It had never occurred to us that we would ever have anything like this in one of our towns...We have a well worked-out plan. We have often thought of maybe a main breakage...and we have thought in terms of fires. And we have even thought in terms of...what we might do in case of bombing attacks. We've done a lot of planning as to just how we could get the town turned back on in the fastest and most efficient way. Now we had never done any planning or contemplated a storm or disaster like this. This was something nobody had ever planned on. (Case S-1, pp. 6, 8, 10)

However, despite the fact that no plans had been previously drawn for this type of disaster, the gas company was able to adapt its pre-existing emergency plans to the situation. Individual servicemen and crews had been sufficiently trained to cope with this somewhat unusual situation. As one gas company official put it:

> We are very happy with the conduct of our men during this period of emergency. I don't think that any amount of additional training or drilling, or any type of instruction we could have given them would have caused them to have acted with sounder judgment or more initiative... (Case S-1, p. 9)

Only one problem of any importance hampered restoration efforts. It was noted that:

> Our major problem over there was the fact that the town [i.e., Judsonia] was so completely wiped away that you couldn't distinguish land marks. You couldn't locate anything. Most all of our lines we had to find by means of electronic pipe locators. That just searched them out and made it slow for us. If it had been a normal sort of a disaster that hadn't changed the land marks and all the buildings had been left standing, and what normally was supposed to be in sight had been in sight, we could have found our locations without much difficulty. But so often we would know the gas service was in a block, or so many meters in a block, but yet we couldn't find the location of where those houses had stood...It was necessary for us to get out with pipe locators and find where that pipe came out, then dig down to it and cut it off. That was our worst problem, just locating our facilities. (Case S-1, pp. 14, 17)

The Water Supply

In Judsonia, because their was no electric power and because of some danger to installations, the water system was completely disrupted. The water mains themselves were reopened only three days after the tornado. There was also some disruption of the Bald Knob water system. Within a few days, both of these towns' systems were hooked up with the Searcy water mains. This put a strain on the Searcy water system especially since pressure was already low because of the many unrepaired leaks caused by the tornado. Full service was gradually restored to all areas.

A number of people, especially in the rural areas, were not connected with any water system but instead obtained their water from wells. The tornado imperiled this supply by contaminating some wells and filling others with debris. Within several days, however, medical units from the National Guard and public health officials from a state agency inspected and cleared most of the contaminated wells. The National Guard also helped in clearing out those that had been filled up with debris and wreckage.

In general, although the water supply was disrupted to varying degrees for different people, it did not present much of a problem, at least insofar as getting something to drink was concerned. It did increase the fire hazards since, in some places, large quantities of water were not available and, in others, the pressure was below normal.

Evaluation by Respondents of the Disruption and Restoration of Utilities

Although every respondent that was in the area probably suffered some kind of disruption of utilities, very few felt that it was much of a disruption when compared with other things. The disruptions were accepted as an inevitable part of this particular situation. At worst the interruption of services was viewed as an inconvenience. Respondents expressed themselves this way:

> We just used an oil lamp. We didn't have too much trouble getting along. Course it was unhandy. Wasn't near as convenient as modern things are, but you can get by with it if you had to. (Case R-346, p. 11)

> It was inconvenient of course to be without the things/lights and gas/you've been accustomed to, but it didn't inconvenience me too much. (Case R-342, p. 11)

> We had light enough /from candles/ that we could see. Of course, we couldn't read or anything but I wouldn't call that a problem after what some people had. (Case R-118, p. 19)

Most people, of course, were not without the services too long even though they might not have them in their own homes. Thus, for example, anyone from the impact areas who moved in with someone at Searcy, naturally had all the services. Even those who stayed in damaged homes did not go for too great a period without their utilities. Thus, only 14 percent of the impact respondents reported they were without electric lights for over a week. About 6 percent stated that they were without gas service for that length of time.

Very few people made either favorable or unfavorable comments about the restoration of the utilities, but, of those who commented, almost all were favorable. Thus, 13 percent and 6 percent of the non-impact and impact respondents, respectively, had something favorable to say about the restoration of utilities, whereas only 2 percent and 1 percent of the non-impact and impact respondents, respectively, made some unfavorable comment. Those who expressed themselves favorably typically stated:

> I thought that was really great. That they could get the lines just about torn up, put back in that little time. We had estimated we would be out of lights...two-three weeks. (Case R-246, p. 28)

> I think it was remarkable how the light service was restored. (Case R-342, p. 7)

> The light men were in here working. Just as soon as it was over with, they started in to work. They really did an enormous job. (Case R-138, p. 18)

Road and Debris Clearance

The tornado left highways full of debris of all sorts such as trees, power lines, wrecks of cars and trucks, etc. In the towns that were hit the situation was even worse. Their streets, in addition to being littered with all the debris that covered the highways, were also buried under the rubble of wrecked and buried houses. In some instances, major sections of buildings had blown over into the middle of the street. Vehicular movement in all of the impact areas was virtually impossible in the period immediately following impact. In Judsonia probably not a single street was completely clear of debris. Certain streets in Bald Knob, notably in the business district and the area around the school were also blocked. Other streets were semi-passable. The only entry into Doniphan from the main highway in the area was completely blocked and long sections of the main highway itself were impassable.

As individuals started to move around after the tornado there was a considerable degree of minor debris clearance. For example, an individual driving down the highway coming across part of a tree would stop and shove it off to one side. In the towns, the residents partially cleared some of the less littered streets. All such minor debris clearance, however, only

served to open up some passageways and really did not make for free movement. Of course, individual efforts without the benefit of proper equipment could not be expected to accomplish too much.

The following incident illustrates minor debris clearance efforts, as well as how blocked roads sometimes prevented the injured from getting prompt medical attention.

> I was bleeding awful bad. And this fellow cranked his car up and started out...girl was hurt very bad...she was in the car with me...we didn't drive, oh, half a block when we run into trees...and couldn't get out. So I said, "Just let me out, I got to get to a doctor or I'll bleed to death." So I got out of the car...and we walked across the block to another fellow's house...his car started and we got out and we drove about two blocks I guess. There was a tree trunk there and he started around it and then we got stuck in the mud. So I said, "Well, I can't stay here, I better leave." So I got out of the car and started walking again and walked about one-half to quarter of a mile. And I found a car in a car shed and a tree had fallen right across the door of the shed...He got a couple of axes and two fellows started chopping out. I waited there about ten minutes. Finally got it chopped out and started up the road, this T, one road goes to Kensett and one of them goes to Searcy...the woman who was driving asked which would be the best...the one that goes to Kensett. She didn't go very far until a bunch of people told us the road was blocked that way so we turned around and went back the other way. Got down there and there was a tree across, it was just the top of it, so we had to stop and chop that out...got down the road about one-half mile and there was a big old tree about two foot big across the road. The trunk across the road and there wasn't any way you could chop that out. We had to turn around again...I don't know how really we got out from there on...I was getting weak. I figured I was fixing to faint. I couldn't see, my eyes were playing tricks...I remember getting to the hospital...I got out and walked about ten steps and went down—completely out. (Case R-329, pp. 3, 4, 10, 12)

It appears that the first use of heavy equipment and large scale debris clearance occurred sometime in the middle of the night at Judsonia. A state official who was in the town all night observed:

> Didn't any vehicles get down in the business section of town [at least until] eleven o'clock that night cause you just couldn't get through the streets. On account of the electric light poles and trees and so forth, rubble in the street...Most helpful people we had, I believe, was the contractor out of Newport, Arkansas, town thirty miles north of us. Brought bull dozers in the first part

> of the night and power plant and cleared off the main part of the street where we could get traffic through down by the business section of town. I'd say that would be the most helpful we had during the emergency. (Case S-27, pp. 13, 31)

The bulk of the equipment of the State Highway Department and of White County, which eventually formed the nucleus of the considerable debris-clearing effort, did not start arriving until the next morning. The same official quoted above stated that:

> I contacted Little Rock by short wave radio [apparently he used ham radio operator's facilities] to get some equipment out here to help clean the streets up and things... the Highway Department equipment didn't start arriving--it had to come fifty or sixty miles--and maybe part of our heavy equipment started coming in around six, seven o'clock in the morning, the 22nd. That was the morning after the storm, that night. (Case S-27, pp. 6, 19)

Starting Saturday morning equipment came in from various governmental and private sources, some of it from as far away as Little Rock. In Judsonia the debris-clearance efforts were eventually coordinated under one individual, a private contractor in the town. He said:

> I was in charge of all of this heavy equipment that came in here cleaning up our streets and our yards...I was selected by the town council to take charge of all the clean-ups... the Highway Department brought in their equipment and then this F. Brothers in Little Rock sent stuff. And then this operating engineers' [concern] sent [men and equipment] in here. And they sent about seventy convicts from Cummings Farm, Negro convicts up here to clean up...We had some cranes and we had some dozers, and we had a lot of trucks...from all over the country...A county judge sent his trucks over here and we've had a lot of donated chain saw labor from W. (Case S-42, p. 14)

An idea of the amount of equipment used may be gotten from the fact that the Highway Department alone sent in 12 pieces of heavy equipment (e.g., bull dozers, front end loaders, drag lines, etc.), some forty dump and flat bed trucks, and several hundred men. White County itself provided nine motor graders, two bull dozers, a drag line and five dump trucks. Manpower was also abundant. As one state official observed:

> Lots of volunteers. The first three days we had, I'd say, a hundred or hundred and fifty volunteer employees of all types. Most of them came in [from saw mills] with chain trawls to help get out the timber and stuff so we could get the streets open...They worked out fine. We got an awful lot of work done by the volunteer people here. (Case S-27, p. 26)

The debris-clearance work went rather smoothly, and with the exception that sightseers occasionally got in the way, no major problem arose. According to one official:

> The work progressed fine. It just went off fine. We made good headway...within 18 hours after the storm hit we had all the streets in the town open for traffic. Some were one way traffic but you could get through the streets...We cleared out a lot of private property besides the highway. The graveyard, we had to clear it out before we could have any funerals. (Case S-27, p. 19)

One of the few complaints on the part of individuals and officials who worked at debris clearance was with respect to the lack of specific types of equipment:

> Winch trucks is what we needed the worst. To pull these stumps and huge logs. The equipment we had wouldn't handle some of the heavier stuff. We had to leave it. (Case S-27, p. 24)

Of course not all the debris clearing effort was concentrated at Judsonia. A county official noted:

> We did the major part of our work right around the city of Judsonia. And the next biggest job was in the city of Bald Knob. When we had that done, we had to go out on our rural roads, our county roads. Also helped clear roads in Doniphan. We took the main arteries first, and then secondly the roads left. Our main object was to get the people freed, and our next thing was to get them back on a normal basis. (Case S-38, p. 11)

The job of clearing the roads to enable free movement was accomplished in most places in four or five days. However, this did not mean that the streets and highways could accomodate normal traffic. What was done in many cases was simply to clear a pathway through the debris so that traffic could at least move one way. Restoring the roads to their usual conditions was left for later work. A county official observed:

> We were four or five days getting the major part of it cleared where you could go through all the way. We're still working at it, this is the third week now. We'll be working at it for some time yet before we get the whole job done. (Case S-38, p. 11)

Residents in the area, on the whole, seemed to feel a good job was done with respect to clearing the roads and getting rid of the debris. Relatively few commented on the activity but of those who did, practically no one had an unfavorable remark to make. Typical of the favorable remarks

was the following:

> We wondered at the time...how they would ever get the debris all cleared...but help is just what come in from everywhere...they've done quite good work too. (Case R-342, p. 19)

The Business Community

In Bald Knob but especially in Judsonia the business districts were badly hit by the tornado. In Judsonia every commercial establishment suffered considerable damage so that it was a week before even one place partially reopened. This resulted in something of a problem especially with regard to the purchasing of food by individuals who remained in the town. Unless people went to another town to buy supplies they had to depend almost exclusively on the relief agencies.[1] As one community leader reported:

> There was no place to eat at all in the town outside of the Salvation Army. They had the only supply of food in town. All our business places were wrecked. Cafes and all the stores were out of operation. So the first store we had open was seven days after the storm here. It was a grocery store. And the first cafe we had open was thirteen days after the storm struck. (Case S-27, p. 28)

Generally speaking, however, respondents were not too disturbed about the absence of operating businesses in the impact area. Only about one individual in every ten mentioned it, and only a few complained about the slow reopening of the stores in the stricken towns. In fact, just as many commented to the effect that they were surprised the stores reopened as quickly as they did.

The business community as a whole, especially in the Searcy area, came in for some favorable comment. About 15 percent of the non-impact respondents praised such activities as the donation of supplies to hospitals and the Red Cross by merchants, the volunteer opening of stores late impact night to give out items, etc. Such a few negative comments as there were, were in nature of a general complaint that the businessmen could have done more than they did.

Practically no one complained of profiteering or the raising of prices. One of the few persons who did so stated:

> In place of charging...such a price, they could have given...the labor or just cut the labor in half...coming to my house...and charging so high. Try to get a double price ...covered half my house and fixed my flue back and charge

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[1] Some respondents who had large supplies of food in deep freezers that were not destroyed reported that they lost such supplies because of the lack of electric power.

me $122. They didn't even clean out my flue. They could have cut their labor half. Instead of that they charge me a double price I think. (Case R-106, p. 22)

The School System

The school plants in Judsonia and Bald Knob were very heavily damaged. In Judsonia only part of one building and a gymnasium were left standing and the total loss was estimated at about $440,000. In Bald Knob the high school building was completely demolished and the rest of the plant was severely damaged (to the extent of about $585,000).

One immediate result of such destruction to public property was that the communities were deprived of places ordinarily used as places of refuge, collection and information centers, etc., in times of disasters. If there had been any pre-tornado plan to use the school buildings as disaster headquarters and centers, the plans could not have operated. It is of interest to note that, in the disaster plans they drew up after the tornado, the various communities listed several buildings that could be used for disaster headquarters. A list of alternatives was established in case one or more of the structures could not be used.

A secondary result of the physical destruction of the school plants was that there arose a problem of what to do about the continuation of schooling. It was eventually decided that since there was just about one month to go, the term could be considered as having ended and the children were released from any further obligations to attend school until the fall. If the disaster had occurred at the beginning or middle of the school year, this hardly could have been done. Several school officials noted that at any other time of the year the disruption of the educational facilities would have resulted in a very serious problem for the affected communities. As it was, the financial losses, although partially covered by insurance, were rather staggering for the size of the communities involved.

CHAPTER VI BACKGROUND FACTORS AS DETERMINANTS OF DISASTER REACTIONS: FOREWARNING, DISASTER-RELATED SKILLS AND PREVIOUS DISASTER EXPERIENCE

In this chapter we shall begin our systematic examination of the relationship between reactions to the disaster and the several variables isolated as probably affecting disaster reactions. This chapter will deal with three types of background characteristics which we hypothesize will make a difference in an individual's actions, affect, and attitudes in and after the disaster: the amount of forewarning he had for this particular disaster; possession of skills or training that would presumably be valuable in dealing with disasters, and prior experience either in this or in other types of disaster.

FOREWARNING

One factor of the prior situation of an individual in relation to a disaster which has obvious implications for his reactions to the disaster, is the amount of forewarning he had of the arrival of the disaster force. How much difference does it make if a person has several hours, several minutes, scarcely a minute, or no forewarning at all? How does it affect his capacity to take appropriate protective or precautionary actions, maintain self-control during the disaster, help others get protection, etc.? Does it make any difference in the extent to which he is actually hit by the disaster when it comes--that is, does it increase or decrease the likelihood of being injured or of household family members being injured or killed in the storm?

In the following analyses, we distinguish three degrees of forewarning individuals may have had for this particular disaster: no forewarning at all, less than a minute, and a minute or more (the latter ranging to any amount of time, but only three percent reported more than five minutes' warning, so that in effect this third category means essentially one to five minutes). We noted in Chapter III some of the difficulties involved in classifying the cases on this variable, because of the inadequacies of the respondent's own temporal recollections, as well as the difficulties involved in the coders' making judgments from the often vague and diffuse interview material. Keeping these cautions in mind, however, there is still warrant for assuming some validity to the distinctions between these three degrees of warning. Considering the consistency of differences between the categories on many aspects of action, affect and attitude, we might well assume that due to the problems of classification here our results understate rather than exaggerate the actual differences that obtain between people with different degrees of warning.

Examples of the different degrees of forewarning are:

No forewarning:

We didn't realize there was a storm til everything was just rollin' and a-tearin' and a-splittin' and goin', that's all. (Case R-326, p. 2)

As far as I was concerned, I didn't know we was even going to have a storm until it just hit. (Case R-110, p. 3)

Practically no forewarning (less than a minute):

We were eating supper when it started in and the lights went out. I got scared then and we all jumped up and run in here. [As far as we can establish, the electricity went off a very brief time before the tornado hit.] (Case R-310, p. 1)

[We went] in the front room to see if it was a storm. There was one of our windows a-leaning...after we heard that roaring, rushed in on us then...no time to even get out of the house. (Case R-298, p. 1, 16)

Forewarning of a minute or more:

[When did it occur to you it might be a tornado?] About five-thirty. [It hit at about—?] Twenty-five to six, I guess. (Case R-098, p. 3)

I left the shed knowing there was a bad cloud...I got home and told my wife she better to have...dinner ready...and we had sit down to eat but it struck before we got through. (Case 334, p. 1, 2)

Forewarning As Related to Other Independent Variables

Before we discuss the relationship between degree of forewarning and individual action and affect in the disaster, we shall do well to examine whether forewarning happens to be associated with any other characteristics which might well be an influence on the same factors we later try to relate to forewarning itself.

Forewarning and Sex

Table 6-1 presents the sex distribution of the groups with the different degrees of forewarning.

Though we would hesitate to infer any causal relationship here, it does turn out that the group with practically no forewarning (i.e., less than a minute) has a somewhat higher proportion of males than the other two forewarning groups.

Table 6-1

FOREWARNING AND SEX

Sex	Percent of Impact Respondents Who Had		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Male	48	58	51
Female	52	42	49
Number of Interviews	56	38	45

Forewarning and Education

Although there are slight differences between the educational distribution of the three forewarning groups, none of the differences is substantial, and together the differences do not constitute any clear-cut pattern.

Forewarning and Occupation

We might expect that people in different occupations would have differential sensitivity to storm cues, resulting in differential periods of forewarning of the tornado. Examination of the tabulations on this showed that, as could be expected, farmers and farm laborers generally tended to arrive at a threat definition sooner (i.e., tended to have a longer period of forewarning) than persons in any other occupations except "manager, official and proprietor," of whom a still higher proportion had a longer period of forewarning. We can think of no explanation for why this latter group should have had an earlier threat definition than others, but the number of cases is so small (only 12) as to cast suspicion on this finding as other than a chance factor.

Forewarning and Household Role

Did the different groups classified by degree of forewarning differ in their distribution of the main household roles—male household heads with or without dependents other than wife, female household heads with and without dependents, wife of head, dependent older adults, and other persons in non-responsible positions? Tabulations on this factor indicate that there were no striking differences in percent of each household role for the various levels of forewarning.

Forewarning and Disaster-Related Skills

Table 6-2

FOREWARNING AS RELATED TO DISASTER-RELATED SKILLS

Amount of Forewarning	Percent of All Persons in Impact	
	With Disaster-Related Skills	Without Disaster-Related Skills
No forewarning	33	43
Less than a minute's forewarning	26	28
More than a minute's forewarning	40	29
Number of Interviews	42	97

Later in this chapter, we discuss the relevance of having skills or training that might in any way be valuable in a disaster—such as military experience, construction work, utilities or communications work, etc. As Table 6-2 shows, there is a clearcut association between having disaster-related skills and arriving earlier at a definition of a threat of tornado or at least a serious storm.

Forewarning and Pre-Impact Reactions

To what extent is the amount of forewarning related to storm-oriented activity in the period just before the tornado hit? Table 6-3 presents the findings, in terms of the "predominant action" during the pre-impact period.

As the table shows, there is a greater amount of every type of activity oriented to the storm threat, with increasing amount of forewarning time, and correspondingly, the more forewarning, the less tendency to continue normal routine activities. We also note that the differences are greater between those having no forewarning and having a little (though practically none), than between those who had practically no forewarning and those who had more than a minute.

We may assume that most of the precautionary, protective, other-protective and investigative activity in the pre-impact period was generally adaptive in terms of the storm threat (though it must be pointed out that adaptiveness was not rated per se in our coding of the interviews).

The fact that, of those who had no forewarning of a real disaster threat, as many as 12 percent took precautionary actions, and 27 percent took investigative actions, needs some comment. Many respondents were coded as

having "no forewarning" even though they reported awareness before the storm hit, of some weather cues or of something a little unusual going on. A case was assigned to the no forewarning category, if the respondent indicated that he did not think he was threatened with a storm of disastrous proportions, until the tornado actually hit. One such respondent, for example, carried out investigative activity, without indicating that she had felt specifically threatened before the storm:

> I went back to the back, looking out the back door...I said, 'Storm somewhere".... (Case R-106, p. 2)

Table 6-3

PREDOMINANT ACTION IN PRE-IMPACT, BY FOREWARNING

Type of Action	Percent of Impact Respondents Who Had		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Precautionary	12	24	33
Protective (of self, or of self with others)	2	21	20
Protective of others	—	29	36
Seeking or getting protection from others	—	5	4
Investigative	27	37	42
Continuing normal routines	25	13	2
No clear indication	35	8	7
Number of Interviews	51	38	45

Similarly, others took precautionary actions (especially putting out fires) which were oriented to their definition of "just a heavy wind," and so could be classified as having "no forewarning" but as taking "precautionary" action before impact. The rest of those without forewarning, if they gave any indication of their pre-impact activity at all, reported continuing their normal routines, for example:

> I got home...and we had sit down to eat, but it struck before we got through. (Case R-334, p. 2-3)

Examples of pre-impact activity by those who had "practically no forewarning" are:

Investigative and precautionary action:

> ...first thing that happened, the lights went out while we were eating supper so I got a flashlight and laid it on the refrigerator and thought we might finish and then I heard the awful roar and by the time I had the family up from the supper table why we ran to the window to see what was happening, but then we thought we could get to the storm cellar but it was too late by that time because the tornado had already struck. (Case R-154, p. 1)

By contrast, those with "some forewarning," i.e., at least a minute or more, generally had time for more types of activity, and more adaptively protective activity. Some, however, merely investigated:

> And just a few minutes after that I noticed an extremely loud noise...I went out on the back porch to try to discover what it might be. (Case R-150, p. 1)

Others took considerable precautionary measures:

> Went, turned the fire out, that's when the wind first started, I went in the kitchen and turned the fire out, and turned the furnace out, and when I got that through, then, well I followed the tank, the hot-water tank...and I never did get it out when everything was blowing. (Case R-202, p. 6)

It was those who had at least a minute's forewarning who were most likely to take actions protective of others. Here is an example of a respondent who took both investigative and other-protective action:

> /My daughter/ said to her daddy...'Is that a train or... a roar from the cloud?' Well, when that happened why me and her daddy got up and went in the house, in the front room to see if it was a storm.... I got down where I could get under the bed and the little boy was crying, the baby, my grandson, and I picked him up and pushed him over to where his mother was at.... (Case R-298, p. 1)

Forewarning and Initial Action During Impact

If we compare the initial actions respondents took right after the storm hit, according to degree of forewarning, we find the following, distinguishing males from females:

Table 6-4

INITIAL ACTION IN IMPACT PERIOD, BY FOREWARNING

Type of Action	Percent of Impact Males With			Percent of Impact Females With		
	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning	No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Precautionary	41	14	9	17	25	5
Protective	22	45	52	38	31	55
Other-protective	4	32	17	7	38	27
Seeking or getting protection from others	—	5	--	3	6	5
Immobility	7	—	—	3	—	—
Investigative	—	—	13	—	—	5
No clear indication from interview	26	5	9	31	—	5
Number of Interviews	27	22	23	29	16	22

We note from the table that males who had no forewarning were more likely to take precautionary actions as their first act when the storm hit, than were those who had some forewarning. While this was not exactly true for the females, if we take the two periods, "no forewarning" and "forewarning of less than a minute" together, the same difference holds for the women, i.e., greater likelihood of taking precautionary measures as the first activity during impact, the less the period of forewarning. It is to be noted that, when the tornado actually hit, such activities as we have classified under "precautionary" were in most cases probably not very adaptive to the danger involved. Such activities—rushing to close doors or windows, putting out fires, getting clothing to put on, etc.,—at the time of impact, as often as not put the individual into more danger rather than helping him, whereas the activities classified as "protective of self or self-with-others" were of the sort that might increase safety from the threat.

Actions protective of self or self-with others varied for the males according to the degree of forewarning—the longer the forewarning the greater the likelihood of taking protective action. The females, however, were slightly less likely to take self-protective action if they had scarcely any forewarning (less than a minute) than if they had none at all. However, both males and females were more likely to take actions protective of others (we may assume, mostly children) if they had only very brief forewarning, than if they had either more or less. The only investigative action noted as initial action in impact was taken by persons who had more than a minute's forewarning. This suggests then that these people were investigating during the pre-impact period when they sensed the danger signals, and were still doing so when the storm hit, whereas those who recognized the danger later or not till the tornado actually hit, did not stop to investigate but immediately did something protective or precautionary, or were immobilized. Respondents who became immobile, though accounting for very few of the respondents (only three cases out of 139) were entirely in the group that had had no forewarning at all of the storm (7% of the males, 3% of the females who had had no forewarning).

Examples of activities of these various types:

Precautionary:

I was trying to hold the front window...that was just before they got under the bed. (Case R-298, p. 5)

Protective of self or self-with-others:

When we heard the roaring and jumped up and run in here... all kinda in a little huddle.... (Case R-246, p. 1)

Other-protective:

So I got the wife and daughter and rolled [them] in the mattress. (Case R-150, p. 1)

Investigative:

I was looking out of the window and I opened the door twice to see if I could hear that roar. (Case 118, p. 3)

Forewarning and Predominant Action During Impact

Turning now from the first action during impact, to the predominant activity during that period, we find the following:

Table 6-5

PREDOMINANT ACTION DURING IMPACT, BY FOREWARNING

Type of Action	Percent of Impact Males With: No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning	Percent of Impact Females With: No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Precautionary	26	9	9	27	25	—
Protective	37	64	70	54	56	77
Other-protective	30	73	39	23	50	45
Seeking or getting protection from others	7	5	9	35	31	18
Immobility	7	—	4	4	—	5
Expressive behavior	—	—	—	—	19	9
No clear indication	19	—	9	12	—	—
Number of Interviews	27	22	23	26	16	22

The table shows that for males, the greater the length of time of forewarning, the more likely that their main action during impact would be self-protective and the less likely that it would be of a precautionary nature. However, being protective of others was significantly more prominent in those who had had less than a minute forewarning, than in those who had more or none at all. For the females, both those with no forewarning and those with scarcely any, exhibited about the same amount of precautionary activity, while none of those who had a minute or more were engaged in this type of action as their main activity. Similarly, in self-protective action, the women who had scarcely any forewarning were more like those who had none at all, than like those who had a longer forewarning period and the latter were considerably more likely to take self-protective action as their main impact action.

We may note again the relatively non-adaptive nature of precautionary activities for the impact period, so there is further evidence that having very little or no forewarning tended to lead people to take actions which may very well have increased their danger. The figures show a slight sex difference in this regard, however, in that for the women, having only a very short time of forewarning (less than a minute) was just as bad as having none at all, to judge by the similar percentages of either precautionary or protective actions in these two female groups. For the men, the figures for precautionary actions

are considerably lower, and those for protective considerably higher, for those with a very brief forewarning, than for those with none at all. It may be that the men were able to react more quickly to the danger once they had the threat definition.

Also, both those who had no forewarning and those who had less than a minute, were rather more likely to be dependent on others for protection or reassurance, than those who had had more than a minute to get prepared, but, interestingly enough, those with scarcely any forewarning were also more protective of others than either of the other two groups. Expressive behavior—crying, screaming, shouting, running about—was reported only by the women who had had some forewarning of the storm, while immobility occurred only among those who had no forewarning at all or more than a minute. However, for both these types of reaction—expressive and immobility—the number of cases on which the percentages are based are too small for any reliable statement.

Summary of All Action in Pre-Impact and Impact, by Forewarning

As a check on how comprehensive a picture one gets of the pre-impact and impact period behavior, from the accounts of only the predominant or initial actions, we also tabulated a summary of all actions taken during either period. We found that the figures varied only in detail from those already presented for predominant actions, the trends of differences being essentially the same as noted above. However, one additional finding from this tabulation, is the relative percentages in each forewarning category who reported themselves as praying during either period (in the other tables this activity is subsumed under the more general category of "seeking or getting protection from other"). For men, the percentages were 22 percent, five percent, and 22 percent for the three forewarning periods respectively; for women, 38 percent, 56 percent, and 59 percent. There appears to be no plausible explanation for the results with the males (except, possibly, sampling variation). For the women, it is possible that those with less forewarning were too concerned with other actions to pray.

Forewarning and Affect During Impact

Did the degree of forewarning make any difference in affective states reported for the impact period? We would expect that those who had scarcely any forewarning, having had some advance notice of the storm but yet not enough for adequate preparatory measures, would exhibit more intense and incapacitating affect during the impact period.

In our attempts to classify affective states on the basis of the verbalized expressions of the respondents, we have been faced with considerable difficulties. Respondents themselves were often not at all clear what their affective state was even at the time, and had even more difficulty in retrospectively reporting it in the interview. Further, the verbalized reports are subject to extreme distortion by the cliches of language, and to some extent by the interview situation itself. Further error may be introduced in the process of classifying these ambiguous statements into some

sort of psychologically-relevant categories. The findings presented here and in other chapters on affective states should, therefore, be taken with considerable caution.

We tried at first to make very minute and precise distinctions of types as well as objects of affect, but found either that such distinctions did not hold up clearly, or that, once made, they yielded too few instances in any particular cells, and would, therefore, have to be combined for any statistical analysis. The result is a compromise set of categories which try to make a few critical distinctions:

- whether or not the affective state was accompanied (or indicated) by uncontrolled behavior

- distinction between states involving heightened emotional tones and those involving some reduction of consciousness and awareness: we have called these types generally: "agitated states" and "shocked-stunned states"

- some rough measure of the intensity of the feeling involved.

Based on these distinctions, the following categories were defined:

1. Agitated and uncontrolled

2. Agitated but not uncontrolled (either definitely involves self-control, or degree of control not specified):

   a. Highly so

   b. Mildly so

3. Shocked, stunned, dazed; in a reduced state of consciousness not due to physical concussion

4. Confused, bewildered, uncertain what is happening, etc.

5. Calm, unexcited; denial of being excited, upset, etc.

Examples of each of these types follow:

Agitated-uncontrolled:

> We heard a mighty roar and thought it was a train. Well my daughter...walked out on the porch and came in and said, 'Oh'—just then another awful roar—and said, 'It's coming a storm' and so we all rushed in the little room and the tornado hit and we prayed and cried and shouted and we went then—ran out to the box factory....(Case R-199, p. 1)

Highly agitated, but not uncontrolled:

> I happen to think of my husband, oh it just tore me all to pieces then—it just scared me to death because I knew he was in it.... (Case R-202, p. 1)

Mildly agitated, but not uncontrolled:

> The kids was screaming as loud as they could...and I was scared but I never did get excited, neither did my husband. (Case R-135, p. 5)

Shocked, stunned:

> Well in other words I've never been over my shock, I was shocked so, I was just shocked to death, till I just couldn't hardly seem like I just didn't know what it is all about, for a while.... (Case R-302, p. 49)

Confused, bewildered:

> When I came to myself, I didn't know where I was at, and I didn't know what happened, I knew something happened but I didn't know what, where, at the time. (Case R-302, p. 5)

Calm, unexcited, denial of being excited:

> I didn't know it was a tornado...if I had been outside looking for it why I probably would have been scared to death, but I wasn't, because I was sick, and I got scared after it was all over with, to think we had a miraculous escape or something. (Case R-200, p. 9)

The distribution of these affective reactions, according to degree of forewarning, is as shown in Table 6-6.

The findings show that in certain respects, having very little forewarning makes for more severe emotional reactions during the disaster, itself, than having no forewarning at all, or having enough forewarning to permit more adaptive protective actions. The percentages reporting shocked-stunned reactions, and confused-bewildered states, are too small to allow any general statement, since they are derived from a very small number of cases. Interesting, however, are the percentages reporting that they were not upset or excited, or were calm during the storm (many of these mentioned specifically that they didn't get scared until afterwards)--particularly for the males, the percentages here are higher for those who had no forewarning at all, than for those with some. This suggests that these people "didn't have time to get scared;" and, possibly, that the verbal statement to the effect that "I wasn't scared" may mask a state of reduced consciousness in which the individual was so taken by surprise that he could not react in terms of a definition of danger and therefore was not conscious of fear. The statement that the respondent got scared afterwards lends support to this latter possibility.

Table 6-6

AFFECTIVE REACTIONS DURING IMPACT, BY FOREWARNING

Type of Affect	Percent of Impact Males With: No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning	Percent of Impact Females With: No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Agitated, uncontrolled	—	—	—	3	6	5
Highly agitated, but not uncontrolled	23	32	26	35	53	59
Mildly agitated, but not uncontrolled	23	36	21	28	25	18
Any agitated states	46	68	47	66	94	83
Shocked, stunned	4	—	4	7	6	14
Confused, bewildered	15	5	4	10	—	5
Calm, unexcited	37	27	13	17	6	9
Number of Interviews	27	22	23	29	16	22

Forewarning and Danger

Did the amount of forewarning an individual had make any important difference in the degree of danger faced during the storm?

We attempted to get at this aspect by tabulating the kinds of wind effects the respondent reported perceiving during the storm, and deriving from this two main categories of degree of danger. Chapter IX discusses in detail how the danger categories were derived. Briefly, we distinguish between those who faced "extreme danger" as indicated by their reporting severe wind effects (such as being blown about, being hit by flying debris, etc.) upon themselves personally or upon other persons with them during impact, as distinguished from those who faced "high danger" as indicated by reporting wind effects only upon the structure they were in (but not upon themselves or other persons). The findings on the relationship between forewarning and danger are as follows:

Table 6-7

FOREWARNING AND DANGER

Degree of Danger	Percent of All Persons in Impact With		
	No Fore-warning	Less Than a Minute's Fore-warning	More Than a Minute's Fore-warning
Extreme danger	41	53	38
High danger	53	47	53
Number of Interviews	51	38	45

Forewarning and Losses: Deaths, Injuries and Property Loss

If we can assume that very brief forewarning increased the probability of danger during the storm, we would expect that it would also make a difference in the effects of the storm on the respondent--in deaths and injuries and, possibly, in property loss. We can get some indication with respect to deaths by noting the extent of deaths of close relatives for respondents who had different degrees of forewarning. Since most people were in family groups during the storm, close relatives who were killed probably had the same amount of forewarning as the respondent. For similar reasons injuries to members of the respondent's household may be combined with injuries to the respondent himself in studying the relationship of forewarning to the probability of sustaining injury.

Table 6-8 shows the percent of each forewarning category who had high, medium, or low loss on deaths, injuries and property destruction respectively. The categories of high, medium and low losses are discussed in detail in Chapter IX. Briefly:--for death loss: "high" means a first-degree relative was killed--spouse, parent, offspring, sibling; "medium" means a more distant relative or a close friend was killed; "low" means only acquaintances or no one at all close to the respondent was killed. For injury loss, "high" means serious injury to self, spouse or other household member; "medium" means less serious injury to any of these; "low" means no injuries, or at least only such things as aggravation of non-storm-incurred ailments. For property loss, "high" means destruction of owned house; "medium" refers to lesser damage to house, damage to other items of property, or destruction of a rented house; "low" means any other (less extensive) damage.

Table 6-8

FOREWARNING AND LOSSES: DEATHS, INJURIES, PROPERTY

Degree and Type of Loss		Percent of All Persons in Impact With		
		No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Death Loss:	High	2	3	2
	Medium	27	42	27
	Low	72	55	71
Injury Loss:	High	5	21	9
	Medium	30	34	33
	Low	64	45	58
Property Loss:	High	64	63	62
	Medium	36	34	38
	Low	—	3	—
Number of Interviews		56	38	45

Details of injuries to the respondent himself, as distributed by degree of forewarning, are given in Table 6-9.

Although the degree of property destruction (as shown in Table 6-8) was almost exactly the same for people in each of the three forewarning categories, they differed substantially in death and injury losses. Since the three forewarning groups had the same degree of property destruction, it is likely that the differences in deaths and injury losses cannot be attributed to "differential exposure" (i.e., to differences in location in relation to the storm).

The differences on death losses must be taken with some caution. The classification used for death loss makes it impossible to tell precisely, whether the relatives killed in each case were members of the same household as the respondent (they were more likely to be so, for "high" death loss, less so for "medium"), and also impossible to tell whether these were individuals who were with the respondent during impact and thus probably shared the same degree of forewarning as the respondent had. If we look at only the "high" death loss as an indication, since these were the relatives most likely to be with the respondent during the storm, there are no differences worth notir between the different forewarning groups. Considering the "medium" however, those with scarcely any forewarning, had higher losses than those with some forewarning or those with none at all.

Table 6-9

FOREWARNING AND RESPONDENT'S INJURIES IN THE STORM

Type of Injury	Percent of All Persons in Impact With: No Forewarning	Less Than a Minute's Forewarning	More Than a Minute's Forewarning
Severe lacerations	2	11	4
Internal injuries	—	5	—
Fractures	2	3	2
Severe bruises	—	8	7
Sprains	5	5	—
Minor cuts, lacerations, etc.	14	34	22
Other	2	5	2
Aggravation of non-storm-incurred ailments	14	16	18
Any injuries or aggravation of ailments	34	53	42
Number of Interviews	56	38	45

The distribution of injury losses gives a clearer picture on this point, since these happened either to the respondent himself or to members of his household (who had a high probability of being with him at the time). Table 6-8 shows that the respondent or his household members had a higher likelihood of being injured if they had only a very short forewarning than if they had longer forewarning or none at all. Table 6-9 shows, in almost all categories, a greater likelihood of various kinds of injuries of the respondent himself, for those respondents who had scarcely any forewarning.

These findings support our earlier suggestion that a period of forewarning of less than a minute was frequently not adequate for really protective actions and therefore might increase the likelihood of getting hurt in the storm. It should be noted that those who had no forewarning at all, sustained fewer injuries than those who had only a brief forewarning.

On the other hand, there are no appreciable differences between respondents with no forewarning and those with more than a minute forewarning except for minor cuts, lacerations, etc. The relatively high proportion of cases with more extended forewarning who sustained cuts and other minor injuries may be related to the somewhat greater prevalence of other-protective activity. One fairly common form of other-protective activity was shielding the other person (wife or child) with one's own body, thus increasing somewhat the protector's vulnerability to flying glass and other debris.

Summary of the Significance of Forewarning In Disaster Reactions

There is evidence that a longer period of forewarning of the storm is associated with an increase in storm-oriented types of activity during the pre-impact period, and also (with some qualifications) with more adaptive kinds of actions during the impact of the storm itself. Men who had no forewarning, and women who had none or scarcely any, were more likely to react during impact first, or predominantly, with actions which were precautionary in intent, and as often as not, such precautionary actions put the individual and the group he was with into even more danger. In many specific instances, having only a very brief forewarning was more disruptive of capacity to take rational action protective of self and others, than having no forewarning at all. Most important, the distribution of precautionary activities by degree of forewarning is the reverse of that for protective activities, the group highest on precautionary (those with least forewarning) being the lowest on protective actions. As for affective reactions, there is evidence that having only a little forewarning produced more agitated reactions than having none at all or having enough to allow for some adaptive actions. Those with least forewarning most often reported that they were calm or unexcited during the tornado itself, but this statement was usually accompanied by the statement that it hit so suddenly they did not know what was happening, and that they "didn't get scared until it was all over."

We also found that degree of forewarning seemed to be related to the extremity of danger the respondent faced during impact--those with scarcely any forewarning finding themselves in more extreme danger than those with either some or no warning. Similarly, brief forewarning was apparently associated with the losses resulting from the tornado--particularly with injuries to the respondent and his household members. A brief forewarning period was less clearly (but suggestively) linked to the possibilities of being killed in the storm, but was not associated with degree of property loss (as might be expected if the difference was attributable to differential exposure to the intensity of the tornado).

DISASTER-RELATED SKILLS AND TRAINING

A second background factor of obvious importance in making for differences in reactions to the disaster, is the possession of skills or training of any kind that would enable the individual better to cope with either the disaster itself or the post-disaster conditions, or to help others deal with the situation. We would include in this category, then, people with training or experience in dealing with other types of dangerous situations, such as those with military service of any kind; people with skills relating to construction which would presumably enable them better to evaluate possible wind effects during the storm itself, and to know what to do to get people out of collapsed buildings; almost all kinds of professional training, especially medical and nursing, but also including morticians, clergymen, and teachers; people with skills or training relating to communications, utilities, or transportation in any way; regular members of disaster-related organizations such as the Red Cross and the Salvation Army; policemen and firemen; and persons in any other type of formal leadership position such as local political leaders.

There is evidence from our studies of other disasters that having disaster-related skills (particularly skills of immediate and obvious value in the particular type of disaster that occurs) makes a great deal of difference in capacity to handle the impact or post-impact situation.[1]

For example, at Flagler, when a stunt plane crashed into a crowd, the radio announcer, who combined communications and previous aviation experience, immediately took a leadership role by broadcasting instructions to the crowd, in essence organizing the rescue-relief work. In the same incident, a telephone operator, a clergyman, a mortician, a physician and a high school teacher each played important roles in the rescue and relief work—roles which amounted to a spontaneous application of their skill roles to the crisis situation. In a carbon-monoxide poisoning incident in a Chicago factory, the woman supervisor of the group of woman workers most affected, though herself equally exposed, resisted the effects of the mysterious agent, and maintained a certain measure of control and reassurance for the frightened workers. During a series of gas explosions affecting many houses in a Rochester, New York, suburb, a schoolteacher maintained effective control over a class of young children even though the explosions were going on nearby and her own mother might have been affected, as well as the mothers of most of her pupils. Conversely, in the same incident, most of the affected women felt helpless because they didn't understand anything about gas and most lacked even the simple skill of turning off the gas meter. Some of the men who were appealed to for help felt an almost equal helplessness based upon the "mystery" of anything to do with gas, while the one man who was familiar with the location of the gas valves in these houses played a much more active role. (See Appendix B-2).

From the White County data it is, of course, much more feasible to explore systematically the effect of disaster behavior of related skill and experience.

How Many Had Disaster-Related Skills?

Table 6-10 presents the percentages of respondents who had each of various kinds of disaster-related skills or training.

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[1] See Vol. III, Appendix B, Reports on Flagler air crash, Brighton gas explosions, and Chicago carbon-monoxide poisoning incident.

Table 6-10

PERCENT OF IMPACT AND NON-IMPACT CASES WITH DISASTER-RELATED SKILLS OR TRAINING

Type of Skill or Training	Percent of All Persons In Impact	Percent of All Persons Not In Impact
Military service—in combat	6	5
Military service—but not in combat	12	12
Medical training	1	3
Utilities, communication or transportation background	6	6
Construction work background	7	5
Other disaster-related skills*	3	4
Any disaster-related skills or training	30	31
Number of Interviews	139	158

* The impact cases in this category were all schoolteachers. The non-impact cases included members of relief organizations (Red Cross or Salvation Army), clergymen, a fireman, a political leader and schoolteachers.

Since the percentages for any particular type of skill or training are so small, it is not feasible to try to make comparisons according to the particular kind of skill; therefore we shall concentrate our attention on comparing the two broad groups, those with such skills and those without.

We would expect persons who had skills or training of any kind directly useful in coping with a disaster or its aftermath, to be better able to take adaptive action for themselves and others during the disaster, to maintain better control over their emotional reactions both during and after the disaster, to take more of a leadership role at any time in the disaster sequence, especially in the emergency post-impact phase, to show less incapacitation and higher morale but perhaps more of incidental (and relatively minor) and non-incapacitating symptoms in the later post-impact period.

Skills as Related to Other Variables

We shall first examine whether having disaster-related skills or not happens to be associated with any other factors which may also have a bearing on the behavior, feelings or attitudes, in question.

Skills and Previous Disaster Experience

In a later part of this chapter we discuss the relevance of having had previous experience in either this or other types of disaster. Here, we shall consider only whether having disaster-related skills happens to be related to having disaster experience. (We may note first that we could expect some overlap here, since military experience was classified as both a disaster-related skill or training, and a prior disaster experience.) Keeping this in mind, the findings on this point are:

Table 6-11

DISASTER-RELATED SKILLS AND DISASTER EXPERIENCE

Type of Previous Disaster Experience	Percent of All Persons			
	In Impact With		Not In Impact With	
	Skills	No Skills	Skills	No Skills
No previous disaster experience	17	26	38	21
Experience in other than tornado disasters only	21	20	14	12
Experience in tornadoes only	31	36	21	43
Experience in both tornadoes and other types of disaster	33	19	27	24
Number of Interviews	42	97	54	104

As the table shows, there is no strong relationship between skills and experience for the impact cases; the non-impact cases, however, show somewhat of an inverse association: particularly regarding tornado experience, specifically, those with skills are less likely to have had previous disaster experience and more likely to have had no disaster experience at all.

Skills as Related to Demographic and Role Aspects

The possession of disaster-related skills and training is, of course, likely to be associated with demographic or role factors such as age, sex, household role, education, occupation, and socio-economic status. Where such associations do exist, it is possible that relationships found between skills and certain aspects of action, affect or attitude, may depend upon the relationship to these other characteristics or upon some combination of both skills and other characteristics rather than upon skills per se.

Skills as Related to Age and Sex

The sex distribution of disaster-related skills is as follows:

Table 6-12

DISASTER SKILLS BY SEX

Sex	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
Male	76	41	67	29
Female	24	59	33	71
Number of Interviews	42	97	54	104

The age distribution is as follows:

Table 6-13

DISASTER SKILLS BY AGE

Age Group	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
18-24 years	—	11	3	13
25-44 years	67	25	68	34
All under 45	67	36	71	47
45-64 years	26	38	27	35
65 and over	7	26	2	18
All 45 and over	33	64	29	53
Number of Interviews	42	97	54	104

As might be anticipated, the respondents with disaster-related skills are primarily men and men in the middle-age range (25-44 years of age).

Skills and Household Role

Table 6-14

DISASTER-RELATED SKILLS AS RELATED TO HOUSEHOLD ROLE

Household Role	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
Male household head without dependents*	24	16	23	14
Male household head with dependents	45	22	43	7
Female household head or wife of head, with dependents	17	22	19	39
Wife of head without dependents	17	20	17	35
Others in non-responsible roles	7	32	6	23
Number of Interviews	42	97	54	104

* "Dependents" as used here excludes spouse.

Table 6-14 shows that the skilled have a much higher proportion of male household heads with dependents, than do the unskilled, and a slightly higher proportion of male household heads without dependents other than spouse. This is true for both impact and non-impact areas. Conversely, the respondents with skills have slightly lower proportions of females with or without dependents and of any persons in non-responsible roles. The results are similar to those of Tables 6-12 and 6-13, since the male household heads with dependents in addition to wife, (see Chapter VII) generally are younger men since older men, whose children are grown and have left the household, tend to be in the group of "male household heads without dependents other than spouse."

Skills and Education

Given our criteria for the classification of people as having disaster-related skills, we would expect these to have more formal education than the non-skilled. It is possible that education per se may be the effective factor in some of the relationships of skills to action, affect and attitudes in the disaster, or that something associated with both of these, such as prestige, is the important variable.

Table 6-15

DISASTER-RELATED SKILLS AND EDUCATION

Amount of Formal Schooling	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
Some college or more	26	7	26	6
Some high school	41	33	36	34
Grade school or less	33	59	36	56
Number of Interviews	42	97	54	104

As Table 6-15 shows, there is a consistent relationship between amount of formal schooling and disaster-related skills, the skilled including considerably higher percent of people with at least some college training and a markedly lower percent of people with only grade school education or less (the "less" meaning no formal schooling at all).

This is significant, in that the more highly educated, in a formal sense, tend, in general, to be "community leaders" in prestige and influence as well as in occupational functions, in such small and relatively simply stratified communities as the ones here being studied.

Skills and Socio-Economic Status

Related to education, of course, is the question of socio-economic status. For the purposes of having one measure to use as a control variable in our analyses, we have constructed a rough socio-economic scale for the populations here involved, based on a combination of income and occupation of household's main earner. The categories are as follows:

High: Income over $4,000 a year; occupations: professional; manager, official or proprietor; or income from real estate, stocks and bonds, etc.

Upper-Middle: Income $1,000-$4,000; occupations as in "High." Or— Income over $4,000; occupations: farmer, farm laborer; clerical or sales workers; crafts, operatives, service worker, or miscellaneous worker; or retired or disabled.

Lower-Middle: Income under $1,000; occupations as in "High." Or— Income $1,000-$4,000; occupations as in second group of "Upper-Middle."

Low: Income under $1,000; occupations as in second group of "Upper-Middle."

Table 6-16

DISASTER-RELATED SKILLS AND SOCIO-ECONOMIC STATUS

Socio-Economic Status	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
High	10	4	9	6
Upper-Middle	21	9	18	13
Lower-Middle	60	40	61	36
Low	10	39	11	38
Not specifiable	—	7	2	7
Number of Interviews	42	97	54	104

As would be expected, the table shows a clearcut relationship between disaster-related skills and higher socio-economic status, for both impact and non-impact cases, the distributions, in fact, being closely parallel for the two areas.

Skills and Situational Factors

Among the situational factors which appear to affect disaster behavior are having household members missing during impact, being alone or with others during the tornado, and, if with others, the type of group composition. Almost exactly the same percentage of the skilled as of the non-skilled (23% against 24%) had household members missing during impact. However, only five percent of the skilled were alone, as against 17 percent of the non-skilled. Since there is some slight evidence (presented in Chapter VII) that being alone tended to be associated with taking more unadaptive or maladaptive action such as precautionary measures after the tornado had already struck, this difference between the skilled and the non-skilled may affect the relationship of disaster-related skills to the type of action taken.

Since, as shown in the following chapter, these factors of group composition--the presence of other adult males for male respondents, and the presence of children for female respondents--appear to make a difference in some aspects of impact period action and affect, we need to take into consideration the fact that the skilled group included a much greater proportion than did the non-skilled, of males who were the only adult males in their group at the time, and a slightly smaller proportion of females in groups without children.

Table 6-17

DISASTER-RELATED SKILLS AND GROUP COMPOSITION AT IMPACT

Type of Group Composition	Percent of All Persons In Impact With Skills	Percent of All Persons In Impact With No Skills
Respondent male: All others females and/or children	55	20
Respondent male: group includes other adult males	19	15
Respondent female: all others adults (male or female)	2	20
Respondent female: group includes children	17	25
Respondent alone	5	17
Number of Interviews	42	97

Summary of Relationship of Skills to the Characteristics and Situation

Comparison of respondents with and without disaster-related skills indicates that those with such skills were primarily men in the age range 25-44 years. The skilled group was also better educated and of somewhat higher educational status. Consistent with these characteristics, the skilled respondents tended also to be heads of households with dependents and were likely to be with other people (wives and/or children) during impact.

Disaster-Related Skills as Related to Disaster Reactions

We may now turn to the relationship of disaster-related skills to various aspects of impact and post-impact action, affect and attitudes.

Skills and Pre-Impact and Impact Action

Did those with disaster-related skills or training act differently just before and during the tornado than those without such skills?

Looking first at a summary of all actions taken by the impact area respondents just before and during impact, we find that there are no differences between the disaster-skilled and the non-skilled, in the percents reporting pre-impact precautionary action, pre-impact self-protective action or investigative action.

Table 6-18

PRE-IMPACT AND IMPACT ACTIONS TAKEN, BY DISASTER-RELATED SKILLS

Type of Action	Percent of All Persons In Impact With	
	Skills	No Skills
Precautionary action--pre-impact	24	25
Precautionary action in impact	26	35
Protective action--pre-impact	24	25
Protective action in impact	79	69
Expressive behavior*	5	13
Flight	2	12
Other-protective	62	55
Seeking or getting protection from others	26	31
Praying	21	37
Actions toward property	7	14
Investigative action*	50	47
Number of Interviews	42	97

* Where period is not specified, tabulation is a summary of this type of action in either period or both.

Where differences worth noting occurred, they were all only slight at best, but all were consistently in the expected direction. Those with disaster-related skills were less oriented to precautions and more to active protection of self and others during the impact period, gave less expressional vent to their emotions in the form of crying, shouting, or running about; were less likely to try to flee (usually a very maladaptive action to take); slightly more likely to protect others and less likely to be dependent on the others; and less likely to pray or take action oriented mainly to property. These differences may, of course, reflect principally the fact that the skilled respondents were largely males.

"Leadership" in Pre-Impact and Impact

We would expect the skilled to show more initiating, guiding and directing of others just before and during the impact of the tornado. Examples of behavior we have classified as "leadership" in this sense, for the pre-impact and impact periods, are:

Pre-impact: Specifically directing others:

> We lit two candles and put them on the counter, and I do remember telling her that 'you'd better run over and blow those candles out--if we are blowed down, we won't catch fire.' (Case R-103, p. 5)

Pre-Impact: Initiating others' behavior by example:

> ...it was just a-rumbling and a-roaring and I said to him, I said, 'There's a storm a-coming,' and he said, 'No, I believe that's just a train.' Of course I left the table and walked in the other room to look and it was so dark, you couldn't see anything, and him and the children come on in with me.... (Case B-137, p. 2)

Impact period: Specifically directing others:

> I went to the kitchen door to see if we could get to the storm cellar...just as I opened the back door, why the porch collapsed. And I slammed the door and I hollered to my mother and a 16-year-old girl that was over the house, 'Come to the kitchen,' I said. 'Lay down and cover up your head.' Girl got under the table and my mother and I just laid on the floor and it happened. (Case B-166, p. 1)

Table 6-19

"LEADERSHIP" IN PRE-IMPACT AND IMPACT, BY DISASTER SKILLS

Period of "Leadership" Activity	Percent of All Persons in Impact Who Were Not Alone In Pre-Impact and Impact, With	
	Skills	No Skills
Leader in pre-impact	30	22
Leader in impact	32	23
Leader in either period	42	38
Leader in both periods	20	7
Number of Interviews	40	81

As the table shows, the differences between the skilled and the non-skilled are only moderate, and could not be considered definitive. Considering also the association of skills with other variables, such as the fact that more of the skilled are male household heads with dependents, for whom the role expectation is to take an initiating and directing position, attributing the difference in leadership behavior to the factor of skills itself is questionable. Similarly, the skilled are more concentrated in the category of respondents who were the only adult male in their respective impact-period groups and by virtue of this fact would also be likely to take a leadership role, quite apart from any skills possessed.

Affective Reaction in Impact, by Disaster Skills

We might expect some differences in emotional reactions during the storm, between those who had disaster-related skills and those who did not, if only from the possibility of giving oneself reassurance by a greater display of confidence to handle the situation, as indicated by the more adaptive behavioral responses of the skilled. Using the categories elucidated in the discussion of forewarning as related to affect, above, we find the following:

Table 6-20

AFFECTIVE REACTIONS IN IMPACT, BY DISASTER SKILLS

Type of Affective Reaction	Percent of All Persons In Impact With	
	Skills	No Skills
Agitated, uncontrolled	—	3
Highly agitated but not uncontrolled	36	39
Mildly agitated, not uncontrolled	28	24
Any agitated states	64	66
Shocked, stunned*	5	6
Confused, bewildered	5	8
Calm, unexcited	19	20
Number of Interviews	42	97

* Other than by physical concussion.

The table shows that the percentages of the skilled and of the non-skilled respectively, on each of the types of affective reaction, are almost exactly equal a result which is all the more revealing when we consider the relatively high proportions of younger males, of male household heads with dependents, of males in situations where they were the only adult male, in the skilled group.

The finding is interesting in indicating that although overt action patterns may differ, indicating greater control and initiative on the part of the skilled, as compared to the non-skilled, they were just as much emotionally affected by the tornado as anyone else (and were, apparently, quite willing to admit it in the interview).

Skills and Immediate Post-Impact Orientation

Did people react any differently immediately after the disaster, according to whether or not they had skills relevant in a disaster situation?

In trying to classify the confused and complicated actions the respondents reported as carried out in the immediate aftermath of the storm, a distinction was made between the objects of orientation of the respondent's action (or for whom the respondent himself was the object of action), and the specific type of activity in which he engaged. Classification of the former gives us some idea of the range of the individual's concerns, in the face of the disaster with its widespread impact, and of the sequence of these concerns (since the interviews were coded for three time periods covering the night immediately following the storm: first half-hour, from then to midnight, and from then to dawn). For any of these periods, any respondent could, of course have been oriented to many different objects, either simultaneously or serially or some combination of both. In the classification used, orientation to a particular person or object does not mean that the respondents were not also oriented to other persons or objects. Hence, there is considerable overlapping of the percentages in each category.

The categories used to classify the objects of orientation, and examples of each, are as follows:

"Self or self with others:" taking care of own interests or needs, or those of a group if own needs are merged with those of the group:

> I managed to get back into the house and get some coats for all of us.(Case R-154, p. 5)

> I wedged down in that fork...and I couldn't get up and couldn't move, my hands was all I could move...till my son had come on up there...helped me get out. (Case R-302, p. 46)

Household kin present (i.e., who were present with respondent during impact, and with or near him immediately afterwards):

> After we surveyed the damage to our home we decided that we'd better get my wife and daughter out of it so I took them to Searcy and my daughter got a shot for shock.... (Case R-150, p. 2)

> I was over at the hospital [with a household relative] till ab it nine o'clock. (Case R-130, p. 2)

Household kin absent (i.e., who were absent from respondent during impact)

> [Woman respondent who was working in a cafe in downtown Judsonia at time of the storm, separated from her children] ...I was wondering about the kids, wondering if they was alright...tried to call up there...but the lines were all down...my brother passed...I still hadn't seen the kids then... (Case R-123, p. 8)

Non-household kin:

> My first thought was to get over to the depot and see about mother and dad. (Case R-138, p. 1)

> We went on to Bald Knob and discovered that our aunt's and uncle's house was blown away...my husband wanted to go over to Mundy to see about his sister. (Case R-246, p. 6)

Intimates: (i.e., persons with whom the respondent has very close affectional and solidarity ties)

> We had friends over there...and they told us that they was all killed except JB...they thought the little girl was still in the wreckage so we tried to find her.... (Case R-246, p. 6)

> A few minutes later I saw a friend of mine who was running down the street with blood running down his face. He had a chill or something and he asked me if I had an extra shoe. He had only one shoe on his feet; so I had rubber boots on and took one of them off and gave it to him right away cause he was pretty sick.... (Case R-194, p. 1)

Any other person, or community in general:

> And immediately then...[we] drove over to Judsonia and was there just as soon as it was over and saw them bring in the injured and dead. (Case R-342, p. 1)

> So then we started out then to see who needed help and whenever we found anyone who did why then we stopped and helped and then...if they didn't,...we'd go on and so we worked till oh...it must have been close to twelve. (Case R-202, p. 2)

It will be noted that "orientation to general community" is not always to be construed as giving aid or rescue. As in the first example, it was often just a matter of driving or standing around looking. Nevertheless, a comparison of the respondents, along any set of categories, on extent of "orientation to the general community" would give a rough indication of the degree to which they were able to focus away from themselves and those they most closely identified themselves with, towards a broader focus of solidarity.

We should expect that those with disaster-related skills would be less oriented to "self or self-with-others," and more oriented to the "general community" than the non-skilled, and would show corresponding differences in orientation to significant others at various degrees of solidarity.

We examined the percentages of the skilled and of the non-skilled who were oriented to each of these objects during the three immediate post-impact periods. Since the kinds of differences we found were basically

the same for all three periods, we present only the tabulations referring to the middle period (from a half-hour after the storm to about midnight) the phase which may be termed the "emergency phase," during which most of the emergency activities—rescue, medical and mortuary—were carried out.

Table 6-21

ORIENTATION OF ACTIVITIES IN EMERGENCY PHASE (6 P.M.-MIDNIGHT), BY DISASTER SKILLS

Object of Orientation	Percent of All Persons in Impact* With	
	Skills	No Skills
Self or self with others	21	52
Household kin present	14	10
Household kin absent	10	5
Non-household kin	36	33
General community	81	44
Number of Interviews	42	97

* Non-impact cases present no differences by skills except: orientation to general community: skilled: 68 percent; non-skilled: 38 percent.

The differences revealed by the table are in the expected direction: at the two extreme points of levels of solidarity involved, the differences between the skilled and the non-skilled are substantial: they are much more community-oriented and much less self-oriented than the non-skilled. However, at the intermediate levels, those of kin at closer and further remove, the differences between the skilled and the non-skilled are negligible. While the difference in community orientation is in line with the differences reported elsewhere for respondents with the characteristics of the skilled, it is somewhat larger than that obtained for these other characteristics and may therefore actually be in large part a function of skills per se.

Skills and Loss Involvement

As Table 6-22 shows, those with disaster-related skills suffered slightly higher death loss—specifically in losses of second-degree relatives or close friends—but the differences in injuries and on property loss, though also in this direction, are too small to be attributable to other than sampling variation. While disaster-related skills may bear on loss involvement, the evidence of such a relationship is very tenuous.

Table 6-22

DISASTER-RELATED SKILLS AND LOSS INVOLVEMENT

Type and Degree of Loss		Percent of All Persons In Impact* With	
		Skills	No Skills
Death Loss:	High	2	2
	Medium	38	28
	Low	60	70
Injury Loss:	High	12	10
	Medium	36	31
	Low	52	59
Property Loss:	High	67	62
	Medium	33	37
	Low	—	1
Number of Interviews		42	97

* Non-impact cases are not included here since they were so much more concentrated in the lower levels of loss, of each type, and the differences between skilled and non-skilled showed up as very minute, in the same direction as for the impact cases.

Skills and Type of Emergency-Phase Activity

Table 6-23

TYPE OF ACTIVITY IN EMERGENCY POST-IMPACT PHASE, BY DISASTER SKILLS

Type of Activity	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
Normal routine activities	—	3	27	57
Received: emergency relief	17	41	—	1
Performed: emergency relief	62	39	29	23
Rescue	36	15	11	1
Medical aid	5	4	12	3
Search for missing	36	25	32	23
Observation and investigation	40	32	55	46
Number of Interviews	42	97	54	104

Table 6-23 shows a quite consistent pattern for both the impact and non-impact cases. Though many of the differences are slight, they are all in the same direction—those with disaster-related skills or training being consistently more active in outgoing or aiding activities, less likely to maintain normal routines (non-impact cases) and less dependent on others for help (impact cases, regarding emergency relief).

Affective Reactions in the Immediate Post-Impact Period

As noted above, those with disaster-related skills were just as upset during impact as those without such skills, and showed only very slightly greater control over their emotional reactions at that time. How about in the immediate post-impact period? Table 6-24 summarizes the affective states immediately after the storm, and later that evening, for the impact cases; and for the non-impact, affect as of immediately after finding out about the storm and then up to six hours after finding out.

Table 6-24

AFFECTIVE REACTIONS IMMEDIATELY AFTER IMPACT, AND TO SIX HOURS LATER, BY DISASTER SKILLS

Type of Affective Reaction	Percent of All Persons In Impact With Skills	Percent of All Persons In Impact With No Skills	Percent of All Persons Not In Impact With Skills	Percent of All Persons Not In Impact With No Skills
Immediately after the storm or knowledge of it				
Agitated, uncontrolled	7	5	—	—
Agitated, but not uncontrolled	36	49	42	55
Shocked, stunned	14	13	—	5
Any strong affect	57	69*	45*	63*
Calm, unexcited	5	9	11	5
Up to six hours after the storm or knowledge of it				
Agitated states	45	43	45	48
Shocked, stunned	12	16	—	—
Any strong affect	64*	62*	60*	53*
Calm, unexcited	5	4	14	2
No indication of affective state for either period	24	15	18	17
Number of Interviews	42	97	54	104

* Includes, as well as agitated and shocked, "other emotional reactions," e.g.,"felt great pity for the people."

If we look only at the first part of the table, i.e., reactions immediately after the storm or hearing about it, it would seem that the skilled had slightly less severe emotional reactions, at least of the agitated types. However, in the later period (beginning one-half hour after impact), there is scarcely any difference at all in any type of reaction between the skilled and the non-skilled. At most, we can say that those with disaster-related skills tended to recover emotionally somewhat more rapidly than those who did not, but, in general, they were just as subject to the various emotional reactions typical of the disaster victims and their immediate intimates and neighbors. After the very immediate post-impact phase, those with disaster-related skills were indistinguishable from the rest of the population in their range of emotional reactions. Thus (as in the impact period), although the skilled appeared able to act more adaptively and protectively toward others and were slightly more likely to maintain initiative in the group they were with, they were still as much affected emotionally by the disaster as anyone else. Put another way—although those with disaster-related skills were emotionally just as upset, they were nevertheless able to act in a more controlled, adaptive, or succoring way than others. And it is this ability to act in spite of intense emotion, that is particularly significant in contemplating disaster planning.

This is an important finding for the psychology of controlled behavior in crisis situations:—note that, of the impact cases, 62 percent of the disaster-skilled gave some kind of emergency relief to others during the emergency post-impact period up to about midnight; yet 43-45 percent of the skilled reported some degree of agitated state during this time, and an additional 12-14 percent reported suffering shocked, stunned reactions, making well over half with one or the other intense type of affective state. The data indicate that a substantial proportion of those with disaster skills gave active aid to others while they were in a state of intense emotional stress themselves. The essential point is that having relevant skills and training which could in some sense be mobilized—even if only in the most general sense of an orientation that "it's up to me to do something about this situation"—apparently facilitated people's ability to be helpful, reliant and a source of recovery, in spite of great emotional stress.

Active Community Orientation for the Whole Post-Impact Period

Table 6-25 further documents the trend noted for the immediate post-impact period, and strikingly so for the impact cases. When we consider "active community orientation" (a summary index of participation in or combination of the activities listed), almost twice as high a percentage of those with disaster-related skills or training as of those without, showed such orientation. For the non-impact cases, the differences are less pronounced, but are in the same direction.

Table 6-25

ACTIVE COMMUNITY ORIENTATION IN THE POST-IMPACT PERIOD, BY DISASTER-RELATED SKILLS

Type of Activity	Percent of All Persons In Impact With Skills	Percent of All Persons In Impact With No Skills	Percent of All Persons Not In Impact With Skills	Percent of All Persons Not In Impact With No Skills
At any time in the post-impact period				
Direct, active rescue work	31	15	9	3
Medical-hospital work	2	—	17	9
Informal relief or rehabilitation to persons other than kin or intimates	52	26	30	31
Volunteer work with formal relief agencies	12	6	23	18
"Active community orientation" (Any of the above activities)	74	40	56	45
Number of Interviews	42	97	54	104

Later Post-Impact Reactions: Physical and Psychological Disturbances

It was suggested above that those with disaster skills might be more emotionally controlled immediately following the disaster, but might later show more of the minor physical or psychological disturbances which are so widespread as an after-reaction to the disaster. This hypothesis derives from the assumption that those who were more active in the post-impact period in the various emergency and restorative activities, would, during these activities, be suppressing the intensity of emotional reaction the disaster actually evoked in them, and that this would necessarily later—say within two to three weeks (the period when most of the interviews were made)—take their toll in various bodily or psychological reactions, not necessarily of a seriously incapacitating sort.

Examples of physiological-or-psychosomatic symptoms reported—are the following:

> We were all sick, just sick to our stomachs, just vomiting after it was over with—nervous reaction. (Case R-138, p. 21)

> I reckon I have neuritis in one of my legs...but I never [had it] in my legs before and last I had it in this elbow I couldn't hardly use it. (Case R-106, p. 20)

And I smothered, too, you know, I just couldn't get a long breath, you just had to just kinda breathe—just real easy—not like you could normal. (Case R-322, p. 29)

I just didn't want anything to eat—I wasn't hungry...I didn't eat any more then until Sunday [tornado occurred Friday night]. (Case R-202, p. 26)

Examples of complaints classified as "psychological" here are the following:

(Do you find it harder to keep your mind on things?) Well I do yet,—I think to a certain extent—even up till now...just since I've been sitting here I just want to quit, I guess, just give up or something. (Case R-202, p. 27)

Seems like I've almost lost the count of time since then. I guess that's because of my regular routing being destroyed... seems like many times I have to stop and think to know what day it is almost. (Case R-150, p. 21)

The last two or three days that have been rather stormy and cloudy looking, I have been just a little bit jittery and nervous, but I never had before. (Case R-342, p. 17)

Every time I shut my eyes I'm down there in all that bunch of wrecked-up building...mostly bad dreams...I dream about all that tornado and things. (Case R-154, p. 11)

I still nervous, just the least noise, I just—it just goes all over me. (Case R-302, p. 58)

Table 6-26

PHYSICAL AND PSYCHOLOGICAL DISTURBANCES IN LATER POST-IMPACT, BY DISASTER-RELATED SKILLS

Type of Disburbance	Percent of All Persons In Impact With Skills	Percent of All Persons In Impact With No Skills	Percent of All Persons Not In Impact With Skills	Percent of All Persons Not In Impact With No Skills
Any physiological or psychosomatic	64	73	33	50
Any psychological (cognitive or affective)	83	88	61	70
Any disturbances—physical or psychological	88	91	61	74
Physical and psychological disturbances	59	70	33	46
Number of Interviews	42	97	54	104

Table 6-26 lends no support to the hypothesis suggested. If anything, persons with disaster-related skills were less subject to later physiological and psychological disturbances. The differences are, in general, those which might be expected on the basis of the characteristics of the skilled noted in the first part of this section.

Other Indications of Morale and Well-Being

Subjective Sense of Deprivation

There is thus cumulative evidence that those with disaster-related skills or training, "held up better" before, during and after the storm, than those without such skills, in the sense of being better able to protect and care for themselves and others as well, even though they suffered just as intense emotional reactions as anyone else. We may close this section, then, by taking one indication of the general state of "morale" or well-being that distinguishes the disaster-skilled from the non-skilled, in the later post-impact period. This is the subjective sense of deprivation.

We noted earlier in this section the relationship of disaster-related skills to loss involvement: the skilled did not differ from the unskilled in injuries sustained to self or household members, or in property loss, but had a slightly higher percentage reporting death of a relative further than first degree or a close friend. In this sense they were slightly "harder hit" as a group than the non-skilled.

If the subjective sense of deprivation, i.e., sense of how hard hit you feel you are, were in line with the objective situation, we should expect the disaster-skilled to feel a slightly higher sense of deprivation than the non-skilled. The extent to which the subjective view appears to understate the objective deprivations may be taken as a rough index of "morale."

Categories for "Subjective Sense of Deprivation"

We classified any statements the respondent made (usually not in reply to direct questioning on this point) that seemed to point to his own feelings about how hard he was hit, how badly he suffered in the storm, etc. Such statements were either in absolute terms or in terms comparing the respondent's deprivations with those of others, or comparing them to how bad things might have been for him. The responses were originally classified into a larger number of categories, making more detailed distinctions, but the number of cases represented by any of these more detailed types of answers was too small for convenient statistical handling, given the relatively small total number of cases in our sample. The detailed categories, were, therefore combined into the following three "absolute" classes and one "relative" class:

"High sense of deprivation:"

> Respondent feels his deprivations are great, without making any comparative statement; or he feels they are great relative to possibilities, as great as they might have been, etc.

"Medium sense of deprivation:"

> Respondent feels his own deprivations were moderate (without comparative statement); or they were moderate compared to what they could have been.

"Low sense of deprivation:"

> Respondent felt he had no deprivation (without comparative statement); or his deprivations were slight or nil, but some were certainly possible; therefore he "got off lucky," etc.

"Feels less deprived than others:"

> Respondent feels that his deprivations, whatever they were absolutely, were certainly less than those of others; others are worse off, etc.

Scarcely any of the respondents reported feeling that their deprivations were worse than others'—though objectively this must certainly have been the case for many—and very few reported in comparative terms that they felt equally hard hit with others. These two categories have, therefore, been omitted. We also tried to classify who the others were with whom respondents compared themselves; but scarcely any specified this in terms other than by reference to "people who were harder hit." It is difficult to give good brief examples of statements which were classified under each of these rubrics, since the decision to classify the respondent in these terms was based upon the code's overall evaluation of the interview, the general emotional tone of satisfaction and various more subtle factors. However, a very rough crude approximation can be obtained from the following excerpts:

"High sense of deprivation:"

> 'Ma, don't worry about it,' he says, you can live with us out at the house. And I said, 'Yes,' but I'd never be satisfied without a home, I've always had a home...and as welcome as I could be, but I feel like the young—I don't think it's right for two families in one house, that's the way I feel about it...I'm just as well by myself...Mr. Martin [respondent's husband]...has been abed 35 years and nearly six months before, he died. I had the awfulest time anybody in this world ever had, and I went through all of that. This [tornado] hurt me as bad. (Case R-152, p. 3)

"Medium sense of deprivation:"

> Far as losing anything, few dishes is all really that I lost. I can get more like them...far's the clothes, course it just everyday clothes...don't matter much about them being kinda injured...but Sunday clothes—it ruined several of them.... It seem like I still tore up. I don't know what I do want to do [goes on at some length about nice neighbors he had, etc., regrets not having a place to live here now]...hate to lose what I got paid in on it [partnership in a machine saw]. (Case R-301, p. 42)

"Low sense of deprivation:"

> I'm just awfully thankful that we're all here and none of us hurt more than we were. (Case R-138, p. 10)

> What a blessing it was, you know, that we wan't killed, we was spared, and we did have our lives, even if we didn't have material things. (Case R-302, p. 50—this woman was actually one of the most severely hit in the whole impact area.)

"Feels less deprived than others:"

> It makes you feel awfully lucky yourself that you wasn't hurt like that. (Case R-118, p. 15)

Table 6-27

SUBJECTIVE SENSE OF DEPRIVATION, BY DISASTER SKILLS

Subjective Sense of Deprivation	Percent of All Persons In Impact With		Percent of All Persons Not In Impact With	
	Skills	No Skills	Skills	No Skills
High	7	16	—	1
Medium	67	64	7	11
Low	14	8	82	72
Less than others	55	42	29	34
No mention	10	11	12	15
Number of Interviews	42	97	54	104

The findings follow our expectations in practically all the comparisons though the differences are not substantial. Those with the disaster-related training do, however, tend more than the others, to understate their actual loss and deprivation from the tornado, and to be more likely than the others to report themselves as less hard hit. The differences in the direction of higher "morale" of the skilled are, however, quite small and, considering the differences in other characteristics, the evidence for <u>any</u> difference is far from conclusive.

Summary of Findings on Disaster-Related Skills

Disaster-related skills or training have apparently made a decided and consistent difference in behavior just before, during and after the disaster. The difference is in the direction of greater control, adaptiveness and active other-orientation of a helpful directive kind. Possession of such skills did not, however, diminish emotional reactions during and right after the storm, but these emotional reactions did not seem to interfere with activities in aiding the stricken community as well as one's own intimates. The control of this affect did not lead to greater incidence of <u>later</u> bodily and psychological disturbances than appeared in those without such skills and training. The slightly <u>lesser</u> incidence, in fact, of the various later reactions, went hand in hand with other indications of higher "morale." Thus, those with disaster-related skills showed a slightly greater tendency to minimize their own deprivations and sufferings.

The disaster-skilled are also those most likely to take on the role of informal community "leaders," at least in the sense in which we have used this term here: people who spontaneously undertake and even direct the various kinds of succoring activities suddenly and urgently needed in the aftermath of the disaster. It is, of course, conceivable that in some disaster situations those with high skills may find themselves in a position where they are unable to exercise these skills because of the enormity of the need. In such cases we may well expect the emotional reactions of the disaster-skilled to be even more intense and incapacitating than those of the non-skilled, and their morale might be much lower than that of other members of the population.

There is considerable evidence of the association of disaster-skills with higher educational background and higher socio-economic status. This, rather than the skills per se, may be an important factor in the higher "morale" of this group in contrast to the non-skilled.

PREVIOUS DISASTER EXPERIENCE AS A DETERMINANT OF DISASTER BEHAVIOR

An obvious aspect of background situation that one would expect to make a difference in a person's reactions to a disaster, is whether or not he has had a previous experience in this, or some other, kind of disaster. The effect of such previous experience has important implications for wartime disasters such as bombings. There is some evidence (see, for example, Janis, Air War and Emotional Stress) that repeated bombing experiences within a limited time period make for differential reactions to this type of disaster experience. Peacetime disasters are not, in general, well adapted to testing the effects of previous disaster experiences, since natural disasters are seldom repeated with any frequency within any short period of time. Although peacetime disasters can probably shed only very limited light on reactions to intense, repeated disasters, an effort will be made here to see whether there is any effect on behavior of such previous experiences as the respondents in this case did have.

In Chapter II we summarized the number of impact and non-impact cases who had experienced--directly or indirectly--each of various types of prior disaster situations. We shall review only salient points here:

1. Only 13 percent of the impact cases and 9 percent of the non-impact had been directly in the impact of a tornado before.

2. An additional 19 percent of impact cases and 13 percent of non-impact had been close enough to a tornado to be threatened.

3. One-fourth of the impact cases and 40 percent of non-impact had had a more indirect type of tornado experience--e.g., an early childhood experience the respondent does not himself remember, seeing the destruction wrought by a tornado, etc.

Data on the recency of previous tornado experiences was provided in too few cases to permit of detailed analysis, but, where the information was given (which applied only to direct and highly involved experiences), nearly all of such experiences had occurred several years back--most as long as twenty years ago.

By contrast, experiences in other types of disaster--the most prominent being auto accidents and heavy windstorms not of tornado dimensions--were, in general, more recent. But again our data are limited by the fact that there are too few cases reporting any one particular type of other-than-tornado disaster to allow for comparisons of effects of different kinds of other disaster experience. It has been necessary to combine these various types of experiences under the general rubric of "non-tornado disasters." The fact that these experiences were probably quite heterogeneous in quality as well as intensity, having only the common characteristic of being crisis or extreme situations, would tend to obscure any relationships between the prior experience

and present reactions. However, as many as 43 percent of the impact cases, and 38 percent of the non-impact, reported having had some such "non-tornado disaster" experience.

It should also be noted that 89 percent of the impact cases who had any previous tornado experience, 84 percent of the non-impact cases, reported only one previous tornado experience (of 18 impact and 21 non-impact cases). Of those who reported any previous non-tornado experiences, three-fourths (both of the impact and of the non-impact cases) reported only one such experience (of 32 impact and 36 non-impact cases).

Thus, our discussion of the relationship between prior experience and reactions in the present disaster, must be highly qualified, to take into account the almost complete lack of cases with recent tornado experience. Certainly, the entire weight of psychological theory would indicate that isolated experiences in the remote past cannot be expected to have the same influence on reactions to a disaster as a series of more recent experiences.

For purposes of the present analysis, all the respondents were classified into the following four categories:

A. No previous disaster experience, either in tornadoes or in any other type of disaster.

B. Previous experience in other types of disaster only, but not in tornadoes.

C. Previous experience in tornadoes only, but not in other types of disaster.

D. Previous experience both in tornado and in other types of disaster.

"Previous experience" in tornadoes includes any degree of involvement in any previous tornado, whether once or more often; whether respondent was directly in the impact of the tornado, on the edge of it, or saw one passing by close enough to recognize it as a tornado. It also includes even more indirect experiences--such as afterwards seeing the destruction wrought by a tornado; an experience as a child which the respondent does not himself remember but which other family members have told him about; or experiences of close family members which respondent was told about. Examples are:

> We had one through here--10 years ago--did tear my neighbor's house, down here, didn't hit us then, we were back off. (Case R-238, p. 2, 3.)

> I was working down in the shed one time, saw one, looked like a long broken cloud close to the ground, not any bigger than a wash-pan probably at the bottom...It didn't do anything, just took up fence posts. (Case R-346, p. 16.)

> I've experienced several of them, but never have been right in the middle of one before, but I've seen the wreckage of them. (Case R-150, p. 20, 21.)

> Well, I heard people talk about it before, of course, and my husband saw one coming over one day...so I have more or less imagined what one looked like. (Case R-246, p. 32.)

"Experience in other types of disaster" includes experiences of any degree of intensity or involvement in any of the following: big windstorms (but smaller than a tornado); hurricanes, typhoons on land; earthquakes or tremors; floods, fires, explosions; car, train, or plane accidents; shipwreck, severe storm, typhoon, or hurricane at sea; war combat, with or without actual direct participation on front lines; etc.

Table 6-28 summarizes the percentage incidence of each major category of previous experience:

Table 6-28

PREVIOUS DISASTER EXPERIENCE

Type of Previous Disaster Experience	Percent of All Persons	
	In Impact	Not In Impact
None	23	26
Non-tornado disaster only	20	13
Tornado only	34	36
Both tornado and non-tornado disaster	23	25
Number of interviews	139	158

Hypotheses

We would expect that persons who had previous disaster experience, particularly of tornadoes, would be more sensitive to the tornado warning cues on this occasion, thus arriving at a sense of threat earlier than others, and would earlier take appropriate precautionary and protective measures; that, although experiencing strong affect, they might be more self-controlled during impact and more able to take protective measures for others; and show fewer uncontrolled and incapacitating types of responses such as expressive behavior (crying, screaming, shouting), uncontrolled flight or panic, or frozen immobility. Further, we might expect that respondents with previous disaster experience would be more likely to take the initiative in directing others what to do, or in leading them in other ways. We would expect that such greater degree of self-control and capacity to take over leadership would carry over into the emergency phase of the post-impact period; and would result in a more active community orientation in that period and in more frequent participation in rescue, transportation of the injured, and emergency medical aid. We would expect also that those with previous disaster

experience might be more sensitive to the problems posed for the control agencies during the early post-impact period, and that their later post-impact attitudes toward the various organizations and agencies giving aid to the disaster victims or trying to restore disrupted services, would be more sharply defined, both positively and negatively, than those of persons without previous experience, since they would have more clearcut standards of comparison. We would also expect them to show higher "morale" as indicated by a greater tendency to understate their own objective deprivations in the storm.

Relation of Previous Experience to Other Variables

Following the procedure we have used before, we shall first note what relationships appear between previous experience and other variables that may have an influence upon the findings.

Previous Experience and Demographic and Role Aspects

Area

There were no differences worth noting in the percentage of each experience group who lived in each of the areas of the disaster.

Age

There is some relationship between age and previous experience, as indicated in Table 6-29.

As the table shows, for the impact cases, those with tornado experience only are more concentrated in the older age groups, while those with other disaster experience only are slightly more concentrated in the younger age groups. For the non-impact cases, the percentage of older persons increases steadily as we move from no experience, to other disaster only, to tornado only, to both. Generally, we may say then that those respondents with tornado experience tend to be older than respondents with no previous disaster experience or with non-tornado disaster experience only.

Table 6-29

PREVIOUS DISASTER EXPERIENCE BY AGE

Age	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster*	Tornado*	Both	None	Other Disaster*	Tornado*	Both
All Under 45	56	60	28	50	63	58	55	45
18-24 years	12	14	2	6	12	7	13	6
25-44	44	46	26	44	51	51	42	39
All 45 or over	44	41	73	50	37	41	46	56
45-64	28	33	41	31	37	30	28	41
65 and over	16	8	32	19	--	11	18	15
Number of Interviews	32	28	47	32	38	21	58	41

* In this and all the following tables in this chapter, the heading "Other Disaster" refers to experiences in other types of disaster only, not in tornadoes; and the heading "Tornado" refers to experiences in tornado only, no other types of disaster experience.

Sex

Table 6-30

PREVIOUS DISASTER EXPERIENCE, BY SEX

Sex	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Male	31	50	62	59	41	45	28	56
Female	69	50	38	41	59	55	72	44
Number of Interviews	32	28	47	32	38	21	58	41

As Table 6-30 shows, for the impact cases, those with no previous disaster experience include a greater percentage of females, than any of the experienced groups. For the non-impact cases, the greatest percentage of females occurs for those with tornado experience only; and the highest proportion of males is in the group with both tornado and other disaster experience.

Household Role

There are a number of differences among the experience groups, according to household role, but they vary from the impact to the non-impact cases, and do not seem to fall into any kind of clearcut pattern. Since this is so and since none of the differences are very large, we may assume that the differential distribution by household role does not introduce any systematic bias in the effects of the experience factor on the various aspects of action, affect and attitude.

Occupation

Table 6-31 presents the findings on occupational distribution of the different experience groups.

Table 6-31

OCCUPATION BY PREVIOUS DISASTER EXPERIENCE

Occupation of Respondent	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Professional, manager, official or proprietor	16	4	19	6	15	15	11	13
Farmer or farm laborer	--	11	13	16	4	7	14	26
Clerical or sales worker	--	7	--	3	5	7	3	7
Craftsman, operative, service worker or laborer	25	46	26	38	23	26	24	19
Housewife	44	25	13	25	39	33	31	13
Number of Interviews	32	28	47	32	38	21	58	41

As the table shows, none of the differences is very large, but some general relationships do emerge. The proportion of farmers is higher for those with "both" types of previous disaster experience and the proportion of craftsman and other workers is higher for those with "other disaster experience only." The proportions of housewives roughly parallel the proportions of females (see Table 6-30) with, however, one substantial departure--while the highest proportion of females occurs in the non-impact group with previous tornado experience only, the group has about the same proportion of housewives as the other non-impact groups.

Socio-Economic Status

Examination of the distribution of the experience groups by socio-economic status shows no relationship between these factors.

Previous Experience and Disaster-Related Skills

As shown above in Table 6-11, there is a very slight relationship between having disaster-related skills, and previous experience in both tornadoes and other disasters, but for the impact cases only. For the non-impact cases, there is a moderate inverse relationship between skills and disaster experience--there is a higher percentage of skilled among those with no previous disaster experience of any type, and a considerably lower percentage for those with tornado experience only.

This latter finding is important in considering the relationship of previous experience to aspects of post-impact action. Since we would expect skills and experience to operate in the same direction (of greater adaptability, "leadership," etc.), the lower proportion of skilled among the experienced non-impact cases, may very well obscure possible relationships of experience to action factors.

Previous Experience and Situational Factors

Location at Impact

Tabulation of the percentages of each experience group located at different places at the time of impact shows no differences worth noting between the different groups.

Household Members Missing

Examination of the data shows almost exactly the same proportion of each experience group having household members missing at the time of the storm.

Group Composition

Since the social situation of the individual during impact appears to make some difference in reactions (see Chapter VII), it is important to note that there is some association between previous experience and group composition.

Table 6-32

GROUP COMPOSITION AT IMPACT, BY PREVIOUS EXPERIENCE

Group Composition	Percent of All Persons in Impact With Previous Experience In			
	None	Other Disaster	Tornado	Both
Respondent alone	13	11	19	6
Respondent male: all others females and/or children	22	28	29	44
Respondent male: group includes other adult males	12	18	20	15
Respondent female: all others adults (male or female)	18	11	17	12
Respondent female: group includes children	34	29	13	22
Number of Interviews	32	28	47	32

The group with both types of disaster experience includes a higher proportion of males who were the only adult male in their respective groups and a lower proportion of respondents who were alone. Those with tornado experience only has the lowest proportion of females in a group including children and the highest proportion of respondents who were alone.

Previous Experience and Involvement

Danger

Examining the different experience categories to see if they differed in extent of danger they faced during the storm, we found only minute differences between them, roughly the same proportion in each case giving indications of being in extreme danger, as compared to only high degree of danger.

Loss Involvement

Tabulation of losses by bereavement, injuries to self and household members, and property destruction or homelessness, revealed that the experience groups do not differ by more than very small percentages in injury and property loss, but the following difference does appear in death loss.

Table 6-33

DEATH LOSS, BY PREVIOUS EXPERIENCE

Degree of Loss	Percent of All Persons in Impact With Previous Experience In			
	None	Other Disaster	Tornado	Both
High*	---	---	4	3
Medium*	16	25	38	41
Low*	84	75	57	56
Number of Interviews	32	28	47	32

* "High" means a first-degree relative was killed; "Medium" means a second-degree relative or a very close friend was killed; "Low" none of these, or only acquaintances killed.

Differences between the experienced and the inexperienced in post-impact behavior may be attributable to this difference in death loss, the inexperienced having noticeably lower losses in this respect.

Action and Affect in Pre-Impact and Impact Periods

Sensitivity to Warning Cues and Priority of Threat Definition

Were those who had previous disaster experience more likely to investigate possible warning cues during the pre-impact period, and did they earlier arrive at a definition of threat of a tornado or similarly dangerous event?

We can get some indication on this point by comparing the percent in each of the previous-experience categories who continued with their normal routines as the main action during the period just before impact, thus showing insensitivity to the danger implications of the warning cues; and compare also

the percent of each category who took investigative action during the pre-impact period. The findings on this are presented in Table 6-34 below.

On priority of threat definition, we can compare the different experience categories on length of time elapsing between their arriving at a sense of threat and the actual impact of the tornado. The findings are given in Table 6-35 below.

Table 6-34

INVESTIGATIVE ACTION VERSUS ONGOING ROUTINE IN PRE-IMPACT, BY PREVIOUS EXPERIENCE

Type of Action	Percent of All Persons in Impact With Previous Experience In			
	None	Other Disaster	Tornado	Both
Continued ongoing routines	9	18	15	13
Investigated warning cues	34	25	36	38
Number of Interviews	32	28	47	32

Table 6-35

AMOUNT OF FOREWARNING, BY PREVIOUS EXPERIENCE

Amount of Forewarning	Percent of All Persons in Impact With Previous Experience In			
	None	Other Disaster	Tornado	Both
None (i.e., no definition of threat before impact)	44	32	38	31
Practically none	19	29	26	38
Some	34	36	30	31
Number of Interviews	32	28	47	32

While these tables show differences between the groups with differing experience, the differences are small and no consistent pattern is apparent. The data thus do not support the hypothesis that the more experienced would show more sensitivity to pre-impact warning cues, and therefore arrive earlier at a sense of threat. The data are however, not sufficient evidence that the hypothesis is false.

Other Pre-Impact Actions: Precautionary and Protective

Comparing the percentages of each of the experience groups who took as their predominant action during the pre-impact period, actions "precautionary," "protective," and "protective of others" (as these have been earlier defined), we find that there are no differences among them worth tabulating here.

However, in listing a summary of all pre-impact actions taken, the percentages taking protective action oriented to self or self with others do show a difference by previous experience: Those with both tornado and other disaster experience showed higher percents taking protective actions than those with only tornado or only other disaster experience, or those with no previous disaster experience. The difference, however, is only a moderate one.

In general, differences between the experience groups are small and inconsistent, and lend little support for the hypothesis that the more disaster-experienced would take more adequate protective action prior to the actual impact of the disaster.

Previous Experience and Impact Period Action

Of the several different kinds of indications we tabulated on action during the impact period--initial action during impact, predominant action, and all actions taken--we found that the results, distinguishing different experience backgrounds, varied somewhat from one criterion to the next, but none of these tabulations showed any clearcut differences by previous disaster experience. We may present below just one of these three which will serve to represent all of them: the predominant action during impact.

Recalling that precautionary activities, during impact, generally tended to be more maladaptive than adaptive, we note here the lower percentage reporting such activities, in those who had other disaster experience. However, the difference is not great, and is not repeated when considering "initial action during impact" or "all actions taken." Otherwise, the only figures that stand out in this table are the relatively low percentages of those with tornado experience only who took actions protective either of self or of others. We may recall here the overproportion of older people in this experience category, which is possibly enough to account for this difference in controlled adaptive or leadership kind of behavior.

Thus, our evidence is insufficient either to support or to refute the hypotheses that the more experienced would be more controlled, more protective for self and others, and show less incapacitating types of responses than those without such experience.

Table 6-36

PREDOMINANT ACTION DURING IMPACT, BY PREVIOUS EXPERIENCE

Type of Action	Percent of All Persons in Impact With Previous Experience In			
	None	Other Disaster	Tornado	Both
Precautionary	16	3	21	19
Protective	66	61	47	66
Other protective	28	46	32	63
Seeking or getting protection from others	13	11	15	31
Immobility	—	3	6	3
Expressive behavior	3	3	2	6
Investigative	3	3	2	6
Number of Interviews	32	28	47	32

Previous Experience and "Leadership" During Impact

Is there any evidence that previous disaster experience enabled people to take a more directing or initiating role during the impact of the tornado? Using "leader" in this sense, as discussed earlier in this chapter, we find the results given in Table 6-37.

According to the findings of this table, far from being more likely to be leaders, the experienced—particularly those with tornado experience only—seem to be less likely to appear in directing and initiating roles. However, we should recall here again that those with tornado experience only have a disproportionate number of older persons, compared to the other experience types, and this may account for the lower proportion of "leadership."

Table 6-37

"LEADERSHIP" IN IMPACT, BY PREVIOUS EXPERIENCE

Leader, and Period	Percent of All Persons in Impact Who Were Not Alone During Impact, and Who Had Previous Experience In			
	None	Other Disaster	Tornado	Both
Leader in pre-impact period	32	24	18	26
Leader in impact period	29	24	18	37
Leader in either pre-impact or impact	43	36	34	47
Leader in both pre-impact and impact	18	12	3	17
Number of Interviews	28	25	38	30

Previous Experience as Related to Affective State During Impact

Did having previous tornado experience, or other types of disaster experience--or both--have an effect on the emotional state of people during the tornado itself? We might expect that previous tornado experience at least--and, perhaps, also other types of disaster experience--would have given the person some sense that it was possible to survive such extreme danger, and thus enabled him to control his own emotional responses and keep them within bounds. However, one can also argue that a person who had been through this before, would know more vividly what an extreme danger it was, and therefore be more overwhelmed by anxiety, fear, or other intense negative affect; whereas someone for whom the tornado was a first experience might underestimate the danger and be less upset by it than would be warranted by the objective situation.

Keeping in mind the caveats we have already expressed about the difficulties and unreliabilities in registering and classifying affect, we present in Table 6-38 a rough general picture of the differences in affective reaction by experience types. It seemed important in these comparisons to separate males from females. Such separation resulted in extremely small numbers of cases in a given category (e.g., there were only 10 interviews for males with no previous disaster experience); it was necessary to restrict the dimension of "previous experience" to two categories--"no previous tornado experience" and "some previous tornado experience."

We note first that, for nearly all types of strong affective reaction, the no tornado experience group shows lesser incidence than the experienced group. For the males, the obverse is true also, that is, that those with no previous experience more often reported feeling calm, unexcited, etc., through the impact period. However, this was not true for the females. One probable

factor here is the greater unwillingness of males than females to admit that they were upset by the storm. If this is so, then our findings suggest that it is progressively less true with greater previous experience--i.e., that males with greater previous experience may tend to report their own affect more frankly.

Table 6-38

AFFECTIVE REACTIONS DURING IMPACT, BY PREVIOUS EXPERIENCE AND SEX

Type of Affect	Percent of Males in Impact With		Percent of Females in Impact With	
	No Previous Tornado Experience	Previous Tornado Experience	No Previous Tornado Experience	Previous Tornado Experience
Agitated, uncontrolled	--	--	3	6
Highly agitated but not uncontrolled	17	33	47	52
Mildly agitated but not uncontrolled	21	29	19	29
Any agitated state	38	63	69	87
Shocked, stunned	4	2	6	13
Confused, bewildered	17	4	11	--
Calm, unexcited	33	23	8	16
Number of Interviews	24	48	36	31

Though the differences between the experienced and inexperienced groups are not pronounced or clearly patterned for any specific subtype of the "agitated" states, for all agitated states, there is a tendency, among both the males and the females, toward greater incidence for those with previous tornado experience. This is true also for the shocked-stunned reactions among the females. The differences on reported agitation are much greater for the males than for the females, principally because such a large proportion of all females report some agitated state.

These differences may bear on cultural standards of what a man will be willing to admit to a strange interviewer about his feelings in a stress

situation--i.e., the more previous disaster experience the more likely a man may be to regard these intense affective states as "normal" and understandable and not a matter for shame. Some of the respondents actually articulated this, with such phrases as, "Of course, I was scared, who wouldn't be at a time like that?" or "Anyone who tells you he wasn't scared is a liar or a faker: it's natural to be scared at a time like that."

Allowing for the possibility that the differences that appear here represent more a difference in willingness to admit particular emotional reactions rather than differences in their occurrence, we may conclude that the evidence seems to point to more intense emotional reactions on the part of those with previous tornado experience. Further, while women report more intense affect generally (and for each specific type), the influence of previous tornado experience seems to be more marked for the men.

The Post-Impact Period

Night of the Storm

Examining now the period immediately after the tornado, we want to know if persons with previous experience were any different from those without previous disaster experience, in their objects of orientation and the types of activity they engaged in, and the kind and extent of affect they displayed. In advance we would hypothesize that those who had previous tornado experience, and, to a lesser extent, those who had experience of other types of disasters, would be more likely to orient themselves earlier away from themselves and immediate kin, toward the general community, and that this would persist longer through that night for the previously-disaster-experienced than for those who were not. We would also expect that the experienced would take a more active role in the immediate aid activities of rescue, emergency relief, and medical help.

Assessment Stage: the First-Half-Hour

Examining who were the objects of orientation of the respondents in the different experience-categories during the first-half-hour after impact, we find that the percentages vary only slightly by previous experience.

Orientation in the Emergency Phase: 6 P.M. to Midnight

The more critical period for immediate post-impact orientations was from about a half-hour after impact to midnight that night. The following table presents the orientations of action by previous experience, for impact and non-impact cases, distinguishing only four of the "orientation" categories: continuing normal routines, oriented to self or self-with-others, oriented to non-household kin, and oriented to the general community.

Table 6-39

ORIENTATION OF ACTION FROM 6 P.M. TO MIDNIGHT, BY PREVIOUS EXPERIENCE*

Object of Orientation	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not In Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Normal routines	—	—	2	4	39	48	47	57
Self or self-with-others	46	36	37	29	19	10	18	22
Non-household kin	32	23	19	36	37	14	29	29
General Community	50	64	19	82	65	52	42	37
Estimated Number of Interviews	28	22	41	28	40	15	54	36

* Excludes persons injured or otherwise incapacitated.

The table shows a rather different pattern for the impact as against the non-impact cases: among the impact cases, disaster experience tends to be associated with less concern with self and immediate others one is with, and more concern with the general community; while for the non-impact cases, the relationship is the reverse. Looking at concern for the general community in the still-later period that night--that is, from midnight to dawn--we find again that for the impact cases the non-experienced show less community orientation, while for the non-impact they show more, than those with disaster experience. For the non-impact cases, those without previous experience also show less continuation of normal routines for that period (as is also evident in the above table for the period up to midnight).

Thus, the hypothesis about the greater likelihood of those with previous experience orienting themselves away from self and immediate kin to the wider community, and doing so earlier, holds up only in part for the impact area and is refuted by the evidence for the non-impact area. Since it is based not on one comparison only, but rather on a consistent trend among a number of different comparisons, even though the differences in some of the cases are not great, we are inclined to believe this difference really differentiates the people according to previous experience. The reversal of trend for the non-impact cases compared to the impact calls for some discussion. We may note at this point that the more experienced non-impact cases include a greater proportion of older people, but that, for the impact cases, the older persons were more concentrated in the group with tornado experience only. Looking at the immediately preceding table, we see that it is precisely in these groups that the percent of community orientation drops. It is quite possible that is the — or, at least, a -- determining factor in these differences.

Type of Immediate Post-Impact Activity

If we examine now the type of activity in the emergency period (6 P.M. to midnight) according to previous experience, we find the following:

Impact area cases had only small percentages of participation and showed no differences worth noting among the experience types, in the following kinds of activity: continuing ongoing routines, being rescued by others, receiving medical aid, giving medical aid, assessment of own property, and transportation of injured. Persons not in impact show low percentages of participation (and no differences worth noting) in assessment of own property. Otherwise, the percentages of various activities in this time period are the following:

Table 6-40

TYPES OF ACTIVITIES IN EMERGENCY POST-IMPACT PERIOD, BY PREVIOUS EXPERIENCE

Type of Activity Performed	Percent of All Persons in Impact with Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Emergency relief	41	39	43	63	39	11	27	15
Rescue	9	14	26	34	4	11	1	6
Medical aid	3	3	4	6	11	—	5	4
Search for missing	25	21	30	34	36	15	24	22
Observing and investigating	22	36	30	56	52	30	47	56
Continuing on-going routines	3	—	2	3	39	56	46	56
Number of Interviews	32	28	47	32	38	21	58	41

These findings corroborate further the trends we noted in objects of orientation for that period: in activities giving aid and help to disaster victims, as well as in searching for missing and simply observing and investigating, the more disaster-experienced impact cases were generally more active than those with no disaster experience. Again, the non-impact cases show almost the opposite relationship—those with no disaster experience being more active and less likely to continue their normal routines in this period. The percentages of those who "searched for missing" (intimates) are interesting, since, as noted above, there are no important differences among the experience categories in percent having household members absent ("missing") during the tornado.[1]

Affective Reactions in the Immediate Post-Impact Period

We noted above that those with no previous disaster experience reported less of various kinds of affective states during impact than did those with previous experience, and that this difference was more pronounced for the males than the females.

[1] The objects of "search" included, in addition to absent household members, non-household kin and intimates.

What, then, about the period immediately after the storm and the period later that evening?

The impact cases reported the following for the period immediately after impact:

Table 6-41

AFFECTIVE REACTIONS IN IMMEDIATE POST-IMPACT, BY PREVIOUS EXPERIENCE AND SEX

Affective Reaction	Percent of Males in Impact With		Percent of Females in Impact With	
	No Previous Tornado Experience	Previous Tornado Experience	No Previous Tornado Experience	Previous Tornado Experience
Immediately after storm				
Agitated, uncontrolled	4	—	6	16
Agitated, not uncontrolled	37	48	44	48
Shocked, stunned	8	4	22	23
Any strong affect*	50	52	75	90
Calm, unexcited	13	10	3	6
Later that evening, to midnight				
Agitated	25	38	53	58
Shocked, stunned	8	13	19	19
Any strong affect*	42	53	72	77
Calm, unexcited	8	2	3	6
Number of Interviews	24	48	36	31

* Figures for "any strong affect" may total more than the sum of the percents "agitated" and "shocked," since this category also includes "other affective states."

As the table shows, the differences in affect between those with previous disaster experience and those without, persist into the post-impact period, both immediately after the storm and later that evening.

Previous Experience and "Active Community Orientation" in the Whole Post-Impact Period

Rescue and Medical Work

In Table 6-40 above, we presented the percentages participating in rescue and medical aid activities for the emergency phase, from six to midnight the evening of the storm. Here we are concerned with how many of each experience group participated in any of these activities at any time in the post-impact period. Our tabulations on this point show percentages which vary only in detail from those presented above but show the same general trend: impact cases show higher percentages of rescue activity for those with previous disaster experience; non-impact cases had very few participating and did not differentiate by experience. Medical activity was mainly by non-impact persons, those without prior disaster experience being slightly more active than the rest.

Informal Relief to Non-related Persons

The following table compares the percents of each experience category who participated in either formal or informal relief, as well as in any "active community orientation."

Table 6-42

PARTICIPATION IN INFORMAL AND FORMAL RELIEF, AND "ACTIVE COMMUNITY ORIENTATION," BY PREVIOUS EXPERIENCE

Type of Activity	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Informal aid to non-related persons	31	50	23	38	43	11	31	28
Volunteer work with formal relief agencies	9	7	6	9	18	30	21	15
Any active community orientation in post-impact*	41	57	51	53	63	37	44	46
Number of Interviews	32	28	47	32	38	21	58	41

*Includes any of: direct active rescue work; medical-hospital work; informal relief to non-related persons; and volunteer work with formal relief agencies.

As the table shows, the impact cases differentiate only slightly, by previous experience, on these aspects of active post-impact community orientation, the experienced being more active in informal aid, and in community-orientation, generally, than the inexperienced. Volunteer work for formal relief agencies does not show distinctions by previous experience.

The non-impact people again show the reverse pattern, at least on informal aid to individual disaster victims, and on community orientation generally: those without previous experience having higher participation than those with such experience.

Again, we should consider that of the impact cases, those with only tornado experience do not differ as sharply from the inexperienced as do those with other disaster experience, and the fact that this group has a higher proportion of older people. Consider also that among the non-impact, the more experienced have more older persons; it is likely that some of the relationships are attributable to differences in the age distributions of the different experience groups.

Later Post-Impact Reactions

We noted above that, for impact cases, the immediate post-impact affective reactions were more intense for those with previous disaster experience, while for non-impact, they were more intense for those with no previous disaster experience (varying in details by sex differences and considering different types of previous experience). Do such differences persist into the later post-impact period in the form of physiological, psychosomatic, and psychological disturbances? Table 6-43 presents the findings, in summary form.

Table 6-43

PHISICAL AND PSYCHOLOGICAL DISTURBANCES IN LATER POST-IMPACT PERIOD, BY PREVIOUS EXPERIENCE

Type of Disturbance	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Any physiological or psychosomatic	56	82	66	81	41	44	41	54
Any psychological	78	86	85	97	61	74	68	70
Any disturbance of either type	81	89	89	100	61	78	72	72
Both physical and psychological	53	79	62	78	41	41	37	52
Number of Interviews	32	28	47	32	38	21	58	41

This table shows that the general trend we found for the impact cases on affective reactions immediately after the storm, holds true for both impact and non-impact cases in their symptomatic disturbances continuing for days to weeks after the storm: i.e., that those with previous disaster experience have a greater incidence of each of the main types of reactions than do those without previous disaster experience, particularly those who have had both tornado and other types of disaster experience. For the non-impact cases, the differences are not particularly large, but they are all in the same direction.

We should recall here that the disaster-experienced impact cases had higher death losses than the inexperienced. This may be a factor in the difference we find here in later post-impact reactions, particularly for the fact that the differences are greater for the impact than for the non-impact cases.

Other Indications of Morale: Subjective Sense of Deprivation

Another indication of differential long-range effects is to be found in the "subjective sense of deprivation" respondents report--i.e., how hard-hit they indicate they think they were, either in absolute terms or in comparison with possibilities or with other persons. As discussed in the preceding section, respondents were classified according to whether they seemed to consider themselves highly, moderately, or only slightly deprived or hard-hit by the storm or its aftermath, or less hard-hit than others.

We noted earlier that, objectively, those with more disaster experience happened to suffer higher losses in deaths of kin and intimates than those without previous disaster experience, though their sufferings in injuries and property destruction or homelessness were about the same. If the subjective sense of deprivation is in line with the objective situation, then we would expect the more disaster-experienced to show a slightly higher sense of deprivation than those with no earlier disaster experience. The following table presents the results.1

Table 6-44

SUBJECTIVE SENSE OF DEPRIVATION, BY PREVIOUS EXPERIENCE

Sense of Deprivation	Percent of Persons in Impact With Previous Experience			
	None	Other Disaster	Tornado	Both
High	12	18	17	6
Medium	60	68	61	71
Low	3	14	13	9
Less than others	31	39	47	66
Number of Interviews	32	28	47	32

1 Non-impact cases are not included, since the vast majority of them, understandably enough, reported their deprivations as low, without any differences among the disaster experience types.

We note that, while two of the experienced types had slightly higher percentages reporting their deprivations as "high" than did the non-experienced, all of the experienced reported greater percentages feeling "medium" or "low" deprivation, and the differences were particularly strong on "feeling less deprived than others." Since the difference in actual loss ran in the other direction, we may conclude that the more experienced are definitely understating their losses or deprivations in comparison with those without prior disaster experience. This may be an indication of higher sense of well-being or morale.

Attitudes Toward Emergency Services and Community Utilities

Other indications of "morale" may be found in the respondent's attitudes about the various emergency activities of the post-impact period, and about disruption of community services as they affected him in his usual work or domestic routines. An analysis of these attitudes is valuable also as a rough indication of the degree to which aggressions have developed in the stricken and proximate communities, and what targets these aggressions are directed against in people's overt expressions of opinion.

Chapter V above presented some discussion of the overall incidence of these attitudes in the impact and non-impact areas, giving a good deal of the detail of the attitudes expressed, e.g., explaining just which relief agencies were criticized, on what grounds, by what percent of the two populations involved. In our present discussion, space limitations prevent a detailed breakdown of these attitudes for discussion of the relation of each of them to previous experience. Instead we shall try to summarize the general tendency of these feelings, opinions, etc. for each general topical area, about the post-impact situation: 1) attitudes about the rescue, medical, and mortuary activities; 2) attitudes about the control agencies; 3) attitudes about relief and rehabilitation agencies; and 4) attitudes about disruption of community services. For each of these topics, all respondents are classified as expressing: a) Only positive or favorable attitudes about the problem in question; b) Only negative or unfavorable attitudes about any aspect of the problem; or c) Mixed attitudes, i.e., either some positive statements and some negative, or statements which were themselve ambivalent, conflicting, or ambiguous.

Attitudes Toward Rescue, Medical, and Mortuary Activities

In comparing attitudes toward the activities of the acute emergency phase--i.e., rescue work, mortuary activities, and medical and hospital work--according to previous experience, we find that the non-impact cases do not differentiate at all in percentages of each experience category indicating positive, mixed, and negative attitudes. For the impact cases, the findings are as follows:

Table 6-45

ATTITUDES TOWARD RESCUE, MEDICAL, AND MORTUARY ACTIVITIES, BY PREVIOUS EXPERIENCE

Attitude	Percent of All Persons in Impact, With Previous Experience in			
	None	Other Disaster	Tornado	Both
Exclusively positive	28	36	34	38
Mixed	3	7	6	13
Exclusively negative	9	7	--	9
None expressed	59	50	60	40
Number of Interviews	32	28	47	32

While qualifying our statement to note the large proportion of each of the experience types who expressed no attitudes at all on these subjects (especially for those with tornado experience only), we may say that there is some evidence of more positive attitude about rescue, medical, and mortuary activities on the part of those with previous disaster experience than those without. Considering that those with disaster experience actually suffered slightly higher death losses in this tornado, the more positive attitudes toward rescue, relief, and mortuary activities are possibly the more revealing. However, the difference was primarily in percentages having "medium death loss," i.e., only relatives at a second-degree remove (grandchildren, grandparents, uncles, cousins, etc.) were killed--which would not necessarily indicate a very close affectional tie.

Nevertheless, the findings suggest that there is something to the hypothesis that having previous disaster experience would make individuals more sensitive to the problems involved in rescue, medical, and mortuary work, and that, therefore, if these things were handled at all reasonably well, respondents would express more appreciation of the work done.

Attitudes Toward Control Agencies

Attitudes toward the control agencies--especially those called in the emergency to maintain order--the National Guard and State Police--and the different governmental bodies--were very scarce in any case and were overwhelmingly positive. Examination of the percentages expressing positive, mixed, and negative attitudes for the various experience categories, produced no results--the differences are trivial.

Attitudes toward Relief-Rehabilitation Agencies

When we compare the different experience categories on their attitudes toward the relief-rehabilitation agencies--Red Cross, Salvation Army, local and other church groups, and others--we find the following:

Table 6-46

ATTITUDES TOWARD FORMAL RELIEF AGENCIES, BY PREVIOUS DISASTER EXPERIENCE

Attitude	Percent of All Persons in Impact With Previous Experience in				Percent of All Persons Not in Impact With Previous Experience in			
	None	Other Disaster	Tornado	Both	None	Other Disaster	Tornado	Both
Exclusively positive	28	50	47	38	20	33	18	15
Mixed	16	21	11	13	2	4	7	19
Exclusively negative	3	11	11	3	9	--	5	9
None expressed	53	18	32	47	70	63	69	57
Number of Interviews	32	28	47	32	38	21	58	41

We see from the table that the non-impact cases show no differences worth reporting as any kind of pattern, and at that, have scarcely more than a third of the respondents giving any kind of attitude expression on this topic. The impact cases (also with rather large percents not reporting) show rather more positive attitudes on the part of those with previous experience, the type of experience not differentiating. This is in the direction of our original hypotheses.

Attitude toward Disruption of Community Services

We would expect those who had previous disaster experience--particularly in tornadoes--to react differently to the derivative disruptions caused by the storm--the temporary breakdown of public utilities--electric, gas, water, telephone, radio--and such other community services as roads, public transportation, businesses, banks, etc. caused by the tornado. Specifically, we would expect these to be more negatively felt by those with no previous disaster experience, while the experienced would expect some disruptions of this sort and not count them as serious compared to other problems.

Examination of our tabulations on this point reveals that the percentage expressing any opinion on this subject was extremely low in all cases, and the differences positive, mixed, and negative, among the experience categories, were all too small to warrant detailed discussion.

Thus, there is no evidence to support the hypothesis in question, although it is not necessarily refuted by our data.

Summary on Post-Impact Attitudes

We find a fairly consistent trend, especially for the impact cases, for those with previous disaster experience to have more positive opinions about the various post-impact problems than those without previous experience. All these differences are moderate at best, and all occur within a general pattern, where, when opinions about these activities are expressed, they are overwhelmingly positive in tone, so that the differences are details of degree rather than direction.

Summary of Significance of Previous Disaster Experience

Keeping in mind our qualifications about the inadequacy of the data of the present study to shed light on the effects of recent and repetitive disaster experiences, and the cautions indicated by the association of previous experience with certain of the other "independent variables," we may attempt to summarize the significance of previous tornado and other disaster experience.

There is insufficient evidence that previous experience gave people greater sensitivity to storm warning cues, or helped them arrive earlier at an accurate threat definition (though this was not disproved either); nor do they clearly exceed the inexperienced in taking protective actions in the pre-impact period. Similarly for the impact period, though various small to moderate differences appeared, no clear-cut trend was established for the disaster-experienced to be more controlled, adaptive, protective of self or others, in the actual impact of the storm, nor to take a directing or initiating role toward others either just before or during the impact of the disaster. In fact, on the latter point, those with "tornado experience only," seem to be less frequently "leaders" than the others (but this is probably due to the high proportion of older persons in this category).

Further, though this may be partly an artifact of willingness to report such things in an interview, there is a tendency for the more disaster-experienced more often to report themselves as being in intense emotional states during the disaster, the difference being more pronounced for the men than for the women. However, this difference in emotional reaction does not extend to loss of self-control in overt behavioral responses.

For the impact cases, previous disaster experience was associated with greater likelihood of intense emotional reactions in the immediate post-impact period, more intense community involvement as shown in action oriented

to the community, and more of the prolonged reactions of physical or psychological sorts. Those with previous disaster experience also showed what might be considered slightly higher morale than the inexperienced, as expressed in understatements of their losses (when making a general statement of their sense of deprivation) and in more positive attitudes about the various post-impact problems.

The non-impact cases showed a different pattern, the inexperienced showing more intense immediate post-impact reaction than the experienced, and more community orientation in the immediate phase, but less of the prolonged physical or psychological reactions. There was no noticeable difference between non-impact cases with and without experience, in attitudes toward the various problems of the post-impact period.

CHAPTER VII NATURE OF THE SOCIAL SITUATION AS A DETERMINANT OF DISASTER REACTIONS

It is axiomatic that the presence of other persons in a situation of stress will have some effect upon individual behavior. Questions may be raised as to whether the number of persons present in itself has any bearing on conduct; whether such numbers tend to calm or agitate the person, mobilize or immobilize him for adaptive activity, etc.. On the other hand, the number of persons present may be less important than who is present—whether one's kin or strangers, for example. By the same token, it may be of the utmost importance to the individual as to who is missing—persons to whom one has perhaps looked for help in other types of stress situations or, conversely, missing persons for whom one feels great concern and who may be imagined in need of help. It is to these and other questions relevant to social and stress situations that we turn our attention.

SOCIAL SITUATION AND FOREWARNING

Considering such problems chronologically, we raise the question whether the number of persons present, just prior to impact, had any bearing upon the existence or lack of a forewarning period. One might expect that the presence of others, in a situation of impending danger, would help the individual see and properly define the danger. On the other hand, one can argue that the larger the number of persons engaged in interaction, the greater the difficulty of achieving consensus. A corollary assumption is that a small group would help the individual but that a larger group might tend to confuse him.

As in Chapter III, three distinctions in forewarning time were made. The relation of forewarning to the number of persons present with the respondent in the pre-impact period is presented in Table 7-1.

Respondents who were alone report forewarning less frequently than respondents who were with others. Table 7-1 also indicates that the respondents who were in small groups, had, in general, less forewarning than those in larger groups. More of the respondents in small groups than of the respondents who were alone had any forewarning but there would seem to be some tendency for the length of forewarning (where there was any) to be greater for respondents who were alone than for respondents in small groups.

Since many respondents had difficulty recalling the amount of time between their sense of threat and impact, or failed to specify it, there was a corresponding difficulty in coding precise time distinctions. For example, the report:

> I went to the front door and opened it and the wind had already started coming from the east and I knew then

> it was a cyclone...a twister. I shut the door and got back into the house and it was blowing so strong it blew the window and blind down.... (Case B-260, p. 1)

might be interpreted as meaning either no warning or a very brief one. Thus, the differences obtained may be obscured by (or possibly may be due to) coding errors. Nevertheless, the differences obtained suggest that the presence of other persons facilitates the interpretation of cues in terms of threat.

Table 7-1

NUMBER OF PERSONS PRESENT WITH RESPONDENT DURING PRE-IMPACT AND EXISTENCE OF FOREWARNING

Forewarning Time	Percent of All Persons in Impact Alone or With Others		
	Alone	With 1-4 Persons	With 5-9 Persons
No forewarning	56	42	26
Less than a minute	6	31	30
More than a minute	39	27	44
Number of Interviews	18	93	27

There are, however, opposing factors—other persons present may ignore or dismiss cues which an individual considers threatening and, in doing so, may delay, rather than facilitate, a threat definition. For example:

> It seemed awful hot...the weather didn't seem right for this time of the year...and I kept watching the cloud...I kept thinking it was going to storm or something...kept looking worse and I tried to get my husband to go to the cellar with me. And he kept saying it wasn't going to do anything. It wasn't going to storm or anything.... He just didn't want to go to the cellar...he didn't want to go out there...I just thought sure it was going to storm here the way it looked and the way that cloud was strolling and all... but he kept saying that he didn't think it was going to do anything.... I just kept worrying about that cloud. It just looked so bad and all. I'd never seen a cloud look just like it did. Just a black cloud and it's just strolling, just over and over. I kept telling my husband that I bet that was a storm just the way it looked and all...but he kept saying he didn't think it was. So I just told him that I was going to get in the truck anyhow.... So I picked

up the baby and started getting in the truck. (Case R-340, pp. 1, 2, 13)

The main thing that we noticed was the sky being green. The girl there, my twelve year old daughter, she began to pace the floor and compalined about the sky looking so green. I didn't pay a whole lot of attention. I told her it was just green because it was late in the evening, the sun shining through, you know, edge of the clouds. So then, after we had quite a shower...we noticed a roaring...and she wanted to know what that was. And I said it was just a freight train. (Case R-227, p. 1)

It seems likely that the effect of social situation comes not from the mere physical presence of others but from their interaction. Such interaction may be nonverbal (e.g., observation by one person of signs of uneasiness or anxiety on the part of others). More often, the interaction is direct and verbal as in the interviews quoted above.

To examine the effect of social interaction (as distinct from mere physical presence), the respondents who were with others are (in Table 7-2) regrouped on the basis of this factor.

Table 7-2

INTERACTION REGARDING THREAT AND FOREWARNING

Forewarning Time	Percent of Impact Respondents		
	Alone	Not Interacting With Reference to Threat	Interacting With Reference to Threat
No forewarning	56	71	20
Less than a minute	6	19	39
More than a minute	39	10	41
Number of Interviews	18	31	79

Comparison of Tables 7-1 and 7-2 tends to confirm the suggestion that social interaction rather than physical presence is the essential factor in the differences in degree of forewarning obtained. It is also of some significance that respondents who were with others but not interacting with them had, in general, less forewarning than respondents who were alone. This may well be due to the fact that failure of others to express uneasiness over a "cue" may lead the individual to assume that the disturbing stimulus is of no importance. There is considerable evidence--see Chapter II--of a tendency of

the respondents to interpret the signals of the approaching disaster in "normal terms" (e.g., to interpret the "roaring" sound as that of a passing train). Similar interpretations in normal terms also occurred in other disasters studied by us.[1] Such interpretations would, of course, tend to be reinforced by actions and remarks which indicate that others consider the situation "normal". While it seems reasonable to ascribe the differences in forewarning to social interaction, it must be remembered that other factors have not been controlled and may account for some of the observed phenomena.

SOCIAL SITUATIONS AND ACTION IN PRE-IMPACT AND IMPACT PERIODS

Table 7-3 summarizes activities performed by the respondents as related to number of persons present, prior to and during impact. The activities indicated are not necessarily mutually exclusive, since a respondent may have, for example, been only temporarily immobilized by fear and then, soon after, engaged in "other-protective" activity. While it might have been instructive to show distinctions in activity by sex as well as by numbers present or other characteristics of the social situation, the numbers upon which such percentages were based were usually too small to permit such an analysis. However, we shall discuss some of the differences in activity by sex, where applicable to a particular point under discussion.

There appear to be no differences associated with the size of the group during impact, in the relative frequencies of expressive activities, flight, other-to-self protective activities or property oriented activity. While there is no difference between those respondents who were alone and those with 1-4 others with respect to investigative activity, the proportion of respondents who were in groups of 5-9 persons reporting this type of behavior is relatively low. Almost exactly the opposite trend appears with respect to praying.

As noted earlier, (Chapter II) religiosity as measured by church attendance and other activities, is pronounced in this Arkansas area. It should not be surprising, then, that such large percentages did report having prayed at one time or another prior to and during impact. Praying behavior might under certain conditions be "non-adaptive" in a tornado situation and possibly symptomatic of immobility. On the other hand, it may mean--for the individual himself--the best available means for protection and may be adaptive in the sense of reducing fear. Thus:

> (Could you tell me a little of how this helped you--this praying during the storm?) Well, I felt relief and I felt like the Lord answered my prayers.... I just asked for forgiveness of our sins and for Him to protect us and take care of us in the storm. ...it was just a relief in my mind that we wasn't going to be killed. (Case R-230, p. 3)

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[1] See, for example, the report of a carbon monoxide asphyxiation incident in Appendix B-9.

Table 7-3

ACTIVITY OF IMPACT CASES AS RELATED TO ISOLATION OR NUMBER PRESENT PRIOR TO AND DURING IMPACT

Type of Activity	Percent of All Persons in Impact Alone or With Others		
	Alone	With 1-4 Persons	With 5-9 Persons
Protecting self (or self with others) (Pre-Impact)	17	24	33
Protecting self (or self with others) (Impact)	67	73	74
Giving protection to others or taking precautionary actions toward others (Either Period)	--	63	74
Receiving protection and precautionary activity from others (Either Period)	--	34	33
Precautionary activity (Pre-Impact)	22	24	30
Precautionary activity (Impact)	44	31	30
Expressive behavior (Either Period)	6	12	11
Immobility (Impact)	17	3	--
Investigative behavior (Either Period)	56	53	26
Property oriented activity (Either Period)	11	12	15
Flight (controlled or not) (Either Period)	6	11	7
Praying (Either Period)	28	27	56
Number of Interviews	18	93	27

The difference in the frequency of prayer in the larger groups probably represents both the effect of group stimulation[1] and of differences in age and sex composition. With respect to investigative action, it must be remembered that the data presented represent investigation by the respondent. In larger groups, there might be considerable investigation on the part of other members of the group, so that the amount of direct investigation by the respondent would tend to decrease, while his dependence on the observations of others would increase.

Table 7-3 also indicates some tendency toward greater prevalence of immobility during impact on the part of those respondents who were alone. The data suggest that the individual who is alone in a situation involving danger

[1] In general, prayer and religious manifestations are group activities and, most frequently, activities of relatively large groups.

may be less decisive and more likely to be frightened to the point of immobility.

Precautionary and Protective Activities

Aside from those activities which are, perhaps, more closely related to or reflective of affective states, are those which we ordinarily refer to as "rationally adaptive." These are the elementary precautions and self-protective measures one may take when sensing or experiencing danger. Investigative action was most often taken to confirm or deny suspicions of danger, or simply taken to ascertain whether the atmospheric conditions (cues) were developing in a threatening manner. The documents contain considerable descriptive material on movement toward doors and windows ("pacin' around") for just such purposes. As already noted, for those in larger groups, there was considerably less of this type of activity than for those alone or in small groups.

With respect to actions of a precautionary and protective nature the differences associated with size of group are quite small. Precautionary and protective activities in the pre-impact period, increased somewhat with an increase in numbers of persons present. This is in line with the evidence (Table 7-1) of increases in the percentage having some forewarning time with increases in the number of persons present, since such actions would, of course, tend to be taken principally by people who had defined the situation as threatening. Precautionary activity during impact seemed to show a reverse trend--that is, with others present, the percent of those taking precautionary steps was less than the percent of those alone who did similar tasks. The fact that, of those who were alone, twice as many took precautionary acts during impact as compared to precautionary measures in pre-impact suggests that people who were alone--and less likely to have been forewarned--were slow in realizing the extremely critical nature of the situation and undertook precautionary acts at a time when such actions may actually have increased the risk of serious injury. This hypothesis is also supported to some extent by the fact that a slightly lower proportion of respondents who were alone took protective action and a relatively high proportion of these were immobilized.

Certain of the activities performed by respondents may be termed "other-protective." While it was not always entirely clear whether such activity was performed primarily to aid or protect another, it was done in all cases with reference to other persons in the situation. As shown in Table 7-3, the percentages of other-protective activity are relatively high by comparison with other types of action. Of the respondents who were with other people, about as great a percentage of persons acted with reference to the protection of others as took self-protective action. The following is an illustration of "other-protective action":

> (Who was in the kitchen with you?) My husband and four children.... We were eating supper...when it struck.... I sat right down in the floor and wanted them all to get around me. After my husband got the fire put out, why he squatted

down nearby me, and the kids was all around. Had him to hold this little one and I the baby. (Case R-310, p. 2)

Social Situation and Leadership

Our discussion of active and passive roles relative to others in stress situations is closely related to the general problem of leadership. The question is: What role (leader, follower, etc.) was played by respondents under these conditions where the sex and age composition of the household varied? Since the respondents reported their actions in impact without necessarily labeling them, the burden for naming activity in leader-follower terms rested entirely with the coders. For this reason, it was impossible to categorize about one-third of the impact cases in these terms. In spite of these difficulties, there is evidence in Table 7-4 of a relationship between group composition and leadership.

Nearly half of the males in groupings where no other adult males were present (though women and, in some cases, children were) acted in some leadership capacity. By contrast, a very small percent responded characteristically as followers. In those groupings where the male respondent was in the company of other adult males as well as with women and children, about one-fourth acted as leaders—a considerable drop—and the percent of followers increased slightly. Moreover, the percent of those who behaved in a generally cooperative manner (rather than as leader or follower) was substantially higher for males in groups containing other adult males. These findings would tend to confirm expectations concerning the male role under the specified conditions, although the percent of cases in which the leadership-followership role could not be distinguished, is relatively high and prevents completely valid generalization.

Table 7-4

RELATIONSHIP BETWEEN SEX AND AGE COMPOSITION OF THE GROUP AND LEADER-FOLLOWER ACTIVITY DURING IMPACT

Type of Activity	Percent of All Impact Cases in Groups With			
	Male Respondents With No Other Adult Male Present*	Male Respondents With Other Adult Male Present	Female Respondents With No Children Present*	Female Respondents With Children Present**
Leadership	40	26	5	15
Follower	5	13	29	23
Cooperative (or joint)***	12	30	24	31
Unascertainable	44	30	43	31
Interviews	43	23	21	26

* Excludes cases of respondent alone.

** Excludes cases where no adult male was present.

*** Joint activity but not clear whether leader or follower.

In the case of female respondents with other adult females and males but without children present, the percent of leadership activity was expectedly low. On the other hand, substantial percentages of female respondents in this situation exhibited follower and cooperative behavior. With children added to the situation, there was more leadership and cooperative behavior and slightly less follower behavior. Thus, as might be expected, there is evidence that the presence of children in a situation of stress, increases the likelihood of women assuming leadership roles.

These trends are brought out somewhat more clearly in an analysis of the relationship between the sex and age composition of the groupings at time of impact and protective activity with reference to other persons.[1]

Table 7-5

RELATIONSHIP BETWEEN SEX AND AGE COMPOSITION OF THE GROUP AND OTHER-ORIENTED ACTIVITY DURING THE PRE-IMPACT AND IMPACT PERIODS

Type of Activity	Percent of All Impact Cases in Groups With			
	Male Respondents With No Other Adult Male Present*	Male Respondents With Other Adult Male Present	Female Respondents With No Children Present*	Female Respondents With Children Present**
Other-protective (Either Period)	65	74	33	81
Other-to-self protective (Either Period)	18	30	57	42
Number of Interviews	43	23	21	26

*Excludes cases of respondent alone.

**Excludes cases where no adult male was present.

As shown in Table 7-5, there is a small difference in the relative frequency of action protective of others between male respondents who were in groups with and without other adult males. This difference is probably related

[1] Such protective action was not necessarily related to leader-follower qualities although there is considerable overlap between the two classifications.

more to other characteristics of the groups than it is to the presence of additional adult males. It is possible that the need to display behavior protective of others may be greater where other males are present but the evidence for such a tendency is quite meagre.

There is also evidence of more dependant behavior (seeking protection from others) for male respondents who were in groups containing other adults. Here, also, the difference is relatively small. However, the picture presented of male behavior in Table 7-4 and 7-5 is consistent with the hypothesis that men who are in position where they are the only male adults are more likely to take a position of leadership and more likely (as part of this leadership action) to take actions protective of others.

The largest difference in Table 7-5 is between women respondents in groups containing children and those in groups with no children. As would be predicted, action protective of others is more likely to occur for female respondents when children are present.

Social Interaction and Activity

The nature of the social interaction prior to impact also had a bearing upon types of activity performed prior to and during impact. Those the respondent was in interaction with others regarding the possibility of danger, there was no appreciable difference in the percents of immobility, expressive behavior, praying, flight behavior, and actions toward property as compared to those not in interaction regarding the danger. However, rather substantial differences did appear with reference to several of the other types of activity (Table 7-6). Of respondents who were in groups which were interacting with respect to the threat, a larger percentage performed investigative acts, took precautionary measures in the pre-impact period, and took protective measures in the pre-impact period. On the other hand, during the impact period itself, about twice the percent of those not in interaction as compared with those who were, took precautionary measures. For the same period (impact) there was no difference in the percents taking self-protective measures. The percents of "other-protective" and "other-to-self protective" acts are also moderately higher in those cases where interaction with reference to danger was reported.

The pattern of differences resembles that for groups with and without forewarning, confirming the rather close relationship between social interaction and forewarning. In general, those who were interacting (and who had more forewarning) took protective and precautionary action during the pre-impact period. Being better prepared for the tornado impact and more fully aware of the nature of the situation, they discontinued precautionary activities when the tornado struck and concentrated on protective actions. Those who were not interacting (and who had less warning of the approaching danger) initiated precautionary actions rather late--in some cases, after the full force of the tornado had arrived when such actions would, in general, tend to be nonadaptive and increase the person's risk of injury. While respondents in both situations took self-protective action during impact equally often,

those who had not defined the threat earlier were probably in a poorer position to help other persons with them--in any event, during impact they took action to protect others less frequently--and were also less likely to receive help from these others.

Table 7-6

SOCIAL INTERACTION IN DEFINING THE DANGER AS RELATED TO TYPES OF ACTIVITY IN THE PRE-IMPACT AND IMPACT PERIODS

Type of Activity	Percent of Impact Respondents	
	Not Interacting With Reference to Threat	Interacting With Reference to Threat
Protecting self (or self with others) (Pre-Impact)	6	37
Protecting self (or self with others) (Impact)	77	76
Giving protection to others or taking precautionary actions toward others (Either Period)	58	71
Receiving protection and precautionary activity from others (Either Period)	29	41
Precautionary activity (Pre-Impact)	19	29
Precautionary activity (Impact)	52	25
Regressive behavior (Either Period)	10	14
Immobility (Impact)	6	1
Investigative behavior (Either Period)	35	54
Property oriented activity (Either Period)	10	15
Flight (controlled or not) (Either Period)	13	10
Praying (Either Period)	32	35
Number of Interviews	31	79

SOCIAL SITUATION AND AFFECT

In view of the relations apparently existing between social situation, amount of forewarning and actions taken during the impact and immediately pre-impact periods, it would seem likely that social situation would be related to affective reactions during pre-impact and impact.

Table 7-7

RELATION BETWEEN THE NUMBER OF PERSONS PRESENT AND AFFECTIVE STATES DURING THE PRE-IMPACT AND IMPACT PERIODS*

Affective States	Percent of All Persons in Impact Alone or With Others		
	Alone	With 1-4 Persons	With 5-9 Persons
Highly agitated (behavior controlled)**	28	39	45
Highly agitated (behavior uncontrolled)	—	—	7
Mildly agitated (behavior controlled)**	39	25	19
Mildly agitated (behavior uncontrolled)	—	1	—
Confused, bewildered	—	10	4
Shock, stun, daze (psychological)	6	5	7
Unconscious	—	2	—
Calm, denial of affect (control)	22	22	11
Number of Interviews	18	93	27

*Affective reactions shown in this table occurred primarily during the actual impact period.

**Includes also cases where degree of control of behavior was not reported. Most of these can be assumed to have been relatively controlled.

Table 7-8

THE IMPORTANCE OF SOCIAL INTERACTION IN DEFINING THE DANGER AS RELATED TO AFFECTIVE STATE IN THE PRE-IMPACT AND IMPACT PERIODS*

Affective States	Percent of Impact Respondents	
	Not Interacting With Reference to Threat	Interacting With Reference to Threat
Highly agitated (behavior controlled)**	38	41
Highly agitated (behavior uncontrolled)	—	3
Mildly agitated (behavior controlled)**	29	16
Mildly agitated (behavior uncontrolled)	—	1
Confused, bewildered	19	3
Shock, stun, daze (psychological)	6	6
Unconscious	—	3
Calm, denial of affect (control)	13	22
Number of Interviews	31	79

*Affective reactions shown in this table occurred primarily during the actual impact period.

**Includes also cases where degree of control of behavior was not reported. Most of these can be assumed to have been relatively controlled.

As indicated in Tables 7-7 and 7-8, there is relatively little evidence of a relation between affective state and either number of persons present with the respondent during impact or existence of social interaction with reference to the threat. There is a tendency for respondents in larger groups to display more intense agitation than those in smaller groups and for those in smaller groups to display more intense agitation than those who were alone. A similar difference (though of lesser magnitude) exists between those who were interacting with reference to the threat and those who were not. In terms of overall frequency of agitated states (regardless of the intensity of agitation), there is practically no difference between respondents in different social situations. It is possible that the greater intensity of agitation exhibited by those in larger groups (and those in groups interacting with reference to the threat) is due to reinforcement of anxiety by observation of the disturbed emotional states of others. It is also possible that concern for the safety of others--particularly, of children--may have acted to increase the emotional disturbance of those persons in the larger groups. Some support for this hypothesis derives from the fact that the cases of respondents with 5-9 other persons were more frequently female respondents with children present than were the respondents with 1-4 other persons.

While respondents in groups where there was no social interaction with reference to threat showed a larger proportion of cases in confused, uncertain, bewildered states than those in groups with social interaction, respondents who were alone reported no confused or bewildered states. While this pattern seems inconsistent, it is consistent with the pattern of forewarning--i.e., where respondents had some but relatively brief forewarning (which was, in general, true of those in groups which were not interacting), they seemed to be subject to more emotional disturbance than those who had no forewarning or more extended forewarning. While the results are suggestive, further investigation is necessary to any definitive conclusion.

With respect to group composition, the principal differences in affective states relate to the frequency of agitated conditions (see Table 7-9). The lowest proportions reporting agitated states are for male respondents who were in groups containing other adult males and the highest proportions, for female respondents in groups without children. The differences parallel differences in sex and what seems to be the "responsibility" or role positions of the classes of respondents. As noted elsewhere (Chapter III) women reported more emotional disturbance than men. Within sex groups, men would tend to have (or, at least, to feel) more responsibility for the safety of others when they were the only males present and women could be expected to feel more responsibility when children were present[1] than when they were not. These expectations are, in fact, confirmed by the data on "leadership" activities in Table 7-4. While the differences in frequency of agitated states are small (considering the confusing and unreliable references in the interviews to affective state during impact), they conform to the hypothesis that responsibility for the welfare of others would tend to increase anxiety and fear reactions during a disaster. It should be noted, however, that this increase in anxiety and fear is not accompanied by a decrease in behavioral control. While uncontrolled

[1]This is, of course, not always true. In some cases presence of another male might increase the respondent's responsibilities--if, for example the other male present was in a highly disorganized state or was elderly or infirm.

behavior and shocked, stunned, dazed, confused or bewildered reactions were relatively rare for all classes of respondents, such differences as exist point to greater control on the part of respondents in situations that imposed greater responsibility.

Table 7-9

RELATIONSHIP BETWEEN SEX AND AGE COMPOSITION OF THE GROUP AND AFFECTIVE STATES DURING THE PRE-IMPACT AND IMPACT PERIODS*

Affective States	Percent of All Impact Cases in Groups With			
	Male Respondents With No Other Adult Male Present**	Male Respondents With Other Adult Male Present	Female Respondents With No Children Present**	Female Respondents With Children Present***
Highly agitated (behavior controlled)#	35	26	52	46
Highly agitated (behavior uncontrolled)	—	—	—	8
Mildly agitated (behavior controlled)#	33	13	33	12
Mildly agitated (behavior uncontrolled)	—	—	5	—
Shock, stun, daze (psychological)	—	4	10	12
Confused, bewildered	7	13	10	4
Unconscious	—	—	5	4
Calm, denial of affect (control)	18	39	10	12
Number of Interviews	43	23	21	26

* Affective reactions shown in this table occurred primarily during the actual impact period.

** Excludes cases of respondent alone.

*** Excludes cases where no adult male was present.

Includes also cases where degree of control of behavior was not reported. Most of these can be assumed to have been relatively controlled.

SOCIAL SITUATION AND OBSERVATIONS OF OTHERS' BEHAVIOR AND AFFECT

We have largely been discussing the behavior and emotional reaction of the respondents as related to the presence or absence of persons in the stress situation. But what of the behavior and affective states of the others? Suggestions have been made all along that there may have been something more than "mere" presence that affected the behavior of the respondents. While this study has aimed primarily to record facts about the respondent, it is also important to note some of the observations made by the respondent concerning the activity and affect of others; for these observations must surely have modified his own behavior and emotional states. Of particular interest are, of course, the respondent's observations of children's behavior. The data on observations of affect in others, also permit us to check the extent to which the distribution of affective state as reported by the person himself agrees with the distribution of affective state reported by others. Since, within any household, the respondent chosen represents a random selection from among all adults in the household, the "population" to which their observations of affect of others applies is the same as the population from which they were selected; so that the distribution of reports of affect observed in others is directly comparable to the distribution of reports of the respondent's own affect.

Table 7-10

COMPARISON OF OBSERVATIONS BY MALES AND FEMALES OF THE BEHAVIOR AND AFFECT OF OTHERS IN THE SAME IMPACT SITUATION

Behavior Observed	Male Observations of			Female Observations of		
	Males	Females	Children	Males	Females	Children
Unconscious	—	—	—	—	1	—
Highly agitated (behavior relatively uncontrolled —hysterical etc.)	1	11	8	3	10	27
Highly agitated (behavior relatively controlled)	6	32	17	28	19	13
Stunned, shocked, dazed	1	1	—	3	1	—
Calm, cool, unexcited	4	3	3	4	3	10
No information	72	26	64	42	58	55
Number of Interviews	72	72	72	67	67	67

As indicated in Table 7-10, females reported observing considerably more lack of control in children than did males. It is possible that females were more attentive and discriminating in this respect, or again, more apt to project. This is borne out to some extent by the percentages on children exhibiting high affect but with relative control, the males attributing a

slightly greater percent to the children observed than did the females.

The percentages reported in Table 7-10 for observations of children's behavior considerably understate the actual prevalence among children of the various reactions, since the base of the percent is the number of respondents, including, of course, respondents who were not with children. In Table 7-11 the same data are presented but basing the percents on the number of respondents who were with children during impact.

Table 7-11

OBSERVATIONS OF CHILDREN'S BEHAVIOR DURING IMPACT BY MALE AND FEMALE ADULTS WITH CHILDREN AT THE TIME

Behavior Observed	Percent of All Respondents With Children During Impact		
	Total	Male Respondents	Female Respondents
Unconscious	—	—	—
Highly agitated (behavior relatively uncontrolled--hysterical, etc.)	39	21	56
Highly agitated (behavior relatively controlled)	34	41	28
Stunned, shocked, dazed	—	—	—
Calm, cool, unexcited	15	7	22
No information	5	4	6
Number of Interviews	61	29	32

The differences between men's and women's observations show the same pattern in both Table 7-10 and Table 7-11. As far as can be determined from these data, the incidence of marked emotional disturbance among children was considerably greater than among adults (compare Tables 7-11 and 7-12). However, there is considerable question whether the difference is in degree of affect or in degree of expression of affect. No respondent reports observing children who were shocked, stunned or dazed during impact—and, if the emotional disturbance was really overwhelming to children, one might expect some such reaction. While the proportion reporting children exhibiting high affect is high compared with such reports for themselves or other adults, the reports are dependent, in most cases, upon the respondent's observation alone. In the case of observations of other adults, it is likely that the respondent's observation was checked (and, probably, "revised") by comments of the person observed. In the case of observations of children,

this is much less likely. Taken at face value, the observations point to a greater emotional impact on children than on adults. However, much more research specifically oriented to children is obviously needed.

Table 7-12

PERCENT OF RESPONDENTS WHO REPORT CERTAIN AFFECTIVE REACTIONS OF THEIR OWN DURING IMPACT

Affective Reactions	Percent of All Respondents	Percent of Female Respondents	Percent of Male Respondents
Unconscious	1	3	—
Highly agitated state--involving uncontrolled behavior	1	3	—
Mildly agitated state--involving uncontrolled behavior	1	1	—
Highly agitated state but behavior controlled	38	49	28
Mildly agitated state but behavior controlled	25	21	27
Confused, bewildered	7	6	8
Shocked, stunned, dazed	6	9	3
Calm, unexcited, self-controlled	19	12	26
Number of Interviews	139	67	72

As we have already stressed, reports of their own emotional reactions by participants are, of course, not entirely dependable, particularly where the report involves admission of behavior deviating from the socially approved. The fact that none of the male respondents reported anything that could be interpreted as "uncontrolled behavior" may reflect this conformity to social norms. However, the reports of respondents on behavior of others present with them during impact as shown in Table 7-10, tend to confirm the respondent's own reports.[1]

Obviously, reports of affective reactions of others do not include the "mildly agitated" and "confused" states since these, in general, were not accompanied by overt behavioral manifestations. The category "highly agitated but behavior controlled" is roughly comparable in the two tables but the

[1] For comparability reports of males observations of males and females observations of females (in Table 7-10) should probably be ignored since these categories omit the respondent's observations of himself or herself and for two-thirds of the men and 57 percent of the women, there was no other adult of the same sex present with them during impact.

category "highly agitated with uncontrolled behavior" in Table 7-10 is probably comparable to a combination of both categories involving uncontrolled behavior in Table 7-12. As might be expected, uncontrolled behavior of others is more frequently reported than uncontrolled behavior of oneself but the relative frequency is still small. Of course, since the "adult of opposite sex" present with the respondent was usually the spouse, the reports in Table 7-10 are also subject to social conformity bias but the general picture is still one in which there was considerable affective reaction but relatively little uncontrolled behavior.

SOCIAL SITUATION IN THE POST-IMPACT PERIOD

One of the more serious problems immediately following a disaster is that of handling people in a state of acute anxiety about the welfare of close relatives who were thought to be in the disaster area at the time of impact. This problem is particularly acute if disaster strikes at a time when family members are in different locations. For example, the Brighton explosions (see Appendix B-2) occurred in a suburban community at a time when most of the men of the community were at work and the older children were at school, leaving the women alone with small children. During the course of this disaster, there was ample evidence of acute anxiety of the women with respect to children away at school (but physically near the disaster area) and of men with respect to their wives and families. This anxiety was heightened by the difficulties and dangers of moving into or within the affected area. Men, on hearing of the disaster, initially tried to reach their families by telephone. Failing in this, they began to drive back to Brighton (some did this without attempting to phone). The result was a terrific traffic jam, aggravated by curious and "helpful" outsiders flocking towards the area, which, of course, further heightened the anxiety of the men and also impeded the movement of rescue and disaster relief units into the area. When the husbands finally reached the area they found road blocks which had been set up to keep out unauthorized people. Some of the husbands evaded the road blocks or "talked" themselves past them.

In the White County tornado, most families were together at the time of impact. About one-fourth of the respondents reported that one or more household members were separated from them at the time the tornado struck (some of these respondents were themselves away from home at the time). It can be seen from Table 7-13, that the only observable difference between those persons who were separated from their immediate families and those who were not, is a slightly higher frequency of "shocked, stunned, or dazed" conditions among the separated group.

The difference in emotional state between those persons who were separated from their immediate families during impact and those who were not, is somewhat obscured by the fact that some of the individuals who were away from their families were reunited with their families within a short time after the tornado passed. For these persons, any emotional tension due to the separation was of brief duration. Separation from immediate family was, however, not the only source of concern about missing relatives and intimates.

In a village and rural area of the type involved in the White County tornado, ties to extended family (parents, siblings, etc.) and intimate friends can be quite strong and concern over such persons may greatly affect the individual's emotional state. As noted in Chapter IV, search for activities in connection with determining the welfare of non-household kin bulked very large in the post-impact period.

Table 7-13

RESPONDENTS EXHIBITING CERTAIN AFFECTIVE STATES BY TIME PERIOD, SEPARATION FROM OTHER HOUSEHOLD MEMBERS AND "SEARCHING" ACTIVITIES

Main Affective States Reported	Separation from Family* Percent of All Persons		Search for Intimates** Percent of All Persons Who	
	Separated	Not Separated	Searched	Did Not Search
Immediately Following Impact				
Agitated	50	53	64	41
Shocked, stunned, dazed	25	10	28	8
During 6 Hours Following Impact				
Agitated	41	46	53	7
Shocked, stunned, dazed	31	10	26	14
Number of Interviews	32	105	61	78

* One or more household members absent from respondent.

** Took active steps to locate kin or intimates at some time during the six hours following the tornado impact.

When we compare the respondents who made relatively intensive attempts to locate kin or intimates[1] with those who did not, we find greater prevalence of agitated emotional states (anxiety, fear, etc.) immediately following impact among the "searchers" and an even more marked persistence of such agitation over the six-hour period from end of impact (about 6 P.M.) to midnight. The relationship is, of course, open to numerous questions. In particular, it is possible that the differences shown may reflect differences in other characteristics between the "searchers" and those who did not search--the difference in

[1] Some of the persons separated from household members are among the people who "searched."

prevalence of "shocked, stunned, dazed" conditions tends to support such an hypothesis--but the size of the groups of respondents involved precludes any complete analysis along these lines. The age-sex composition of "searchers" and "non-searchers" was somewhat different. As might be expected, there was a substantially higher proportion of males and younger persons (18 to 50 years of age) among those who searched than among those who did not search. However, since males less frequently reported marked emotional states following impact than females and there is very little difference between younger and older persons, the higher incidence of marked emotional reactions among searchers cannot be attributed to the differences in age and sex composition. The age-sex comparison, therefore, tends to support the hypothesis of a positive relationship between separation of kin or intimates and the prevalence of agitated emotional states.

The data of Table 7-13 relate to relatively short-run types of emotional response. In addition to the affective states which may have manifested themselves during and shortly after impact are those which occurred not only at the time of impact but also days later and which may properly be termed "disorders." These include psychosomatic as well as more nearly psychological and physical manifestations that had varying effects upon the individual--effects which may have been merely annoying on the one hand or relatively incapacitating on the other. Table 7-14 indicates a slight positive relationship between having a household member missing during impact and the total of all types of disorder. The relationship appears valid even if slight, since the percents are larger for each type of disorder for those with someone missing. Detailed tabulations of individual symptom groups also generally support this finding (see Tables 7-15, 7-16 and 7-17).

Table 7-14

RELATIONSHIP BETWEEN THE PRESENCE OR ABSENCE OF KIN DURING IMPACT AND MANIFESTATIONS OF PHYSIOLOGICAL, PSYCHOSOMATIC AND/OR PSYCHOLOGICAL DISORDERS

Type of Disorder	Percent of Persons in Impact With	
	No One Missing	Someone Missing
No disturbance of any kind specified below	10	6
Any physiological and/or psychosomatic disturbance	69	78
Any psychological disturbance	85	94
Any disturbance of any kind (physiological or psychological)	90	94
Number of Interviews	105	32

Table 7-15

RELATIONSHIP BETWEEN THE PRESENCE OR ABSENCE OF KIN DURING IMPACT AND MANIFESTATIONS OF PHYSIOLOGICAL-PSYCHOSOMATIC DISORDERS

Nature of Disorder	Percent of Persons in Impact With	
	No One Missing	Someone Missing
Sleep disturbances	45	50
Loss of appetite	27	34
Headaches	19	22
Respiratory disturbances (including colds)	16	16
Generalized weakness	8	9
Bowel and bladder disturbances	5	9
Skin disorders (e.g., rashes, hives, etc.)	2	—
Coronary-circulatory disturbances	1	3
Disturbances of genital functioning	1	—
General malaise or any vaguely-specified or specified reaction not classified above	13	22
No physiological-psychosomatic disorder reported	34	28
Number of Interviews	107	32

Table 7-16

RELATIONSHIP BETWEEN THE PRESENCE OR ABSENCE OF KIN DURING IMPACT AND MANIFESTATIONS OF AFFECTIVE PSYCHOLOGICAL DISTURBANCES

Nature of Disturbance	Percent of Persons in Impact With	
	No One Missing	Someone Missing
Nervousness, excitability, hypersensitivity to non-storm stimuli	44	66
Hypersensitivity to storm cues	32	31
Anxiety dreams, nightmares, etc.	16	25
"Shocked," "went around in a daze," etc.	14	13
Depressed feeling, "blue," "low," etc.	7	16
Anxiety (no object noted)	2	3
Irritability, low frustration tolerance	1	3
Other affective psychological disturbances not classified above	4	6
Denial of any affective psychological disturbance	20	25
No affective psychological disturbance reported	20	9
Number of Interviews	107	32

Table 7-17

RELATIONSHIP BETWEEN THE PRESENCE OR ABSENCE OF KIN DURING IMPACT AND MANIFESTATIONS OF COGNITIVE PSYCHOLOGICAL DISTURBANCES

Nature of Disturbance	Percent of Persons In Impact With	
	No One Missing	Someone Missing
Thinking about the storm	43	50
Inability to concentrate	36	41
Forgetfulness	20	22
Reduced capacity for work (occupational or domestic) because of symptoms (respondent himself makes the connection	14	25
Thinking about possibilities of new storm	7	9
Tries to refrain from thinking about past storm but unable to stop--thinking has an "obsessive" quality	4	9
Inability to work (occupational or domestic) because of symptoms (respondent himself makes the connection)	2	3
Any other cognitive-perceptive disturbances (e.g., occasional hallucinations, etc.)	1	6
Denial of any cognitive disturbances	9	9
No cognitive psychological disturbances reported	21	16
Number of Interviews	107	32

CHAPTER VIII ROLE RESPONSIBILITIES AS A DETERMINANT OF DISASTER REACTIONS

The preceding chapter was concerned with the relevance of the social situation the respondent faced at the time of the storm, which we can consider as dictating--or, at least, limiting--the roles the individual was called upon to play. We now turn to consider certain more enduring aspects of the problem of role in disaster--specifically, the question of responsibilities or lack of responsibilities attaching to the relatively enduring roles the individual has in his social groups.

There is some evidence from other studies that the responsibilities which an individual is accustomed to (or, at least, expected to) assume in his normal social roles may make a vast difference in his behavior in disaster. In a number of our smaller studies, we found cases where the normal role responsibilities were extremely important (see Vol. III for details). For example, when a stunt plane crashed into a crowd at Flagler, Colorado, a priest was among the most actively community-oriented, immediately and unhesitatingly taking over duties toward the dead and dying set for him by his position and training (see Appendix B-1). Other professionals, such as doctors and a mortician, were equally helpful, primarily in activities which would be legitimately expected of them in their professional roles.

The responsibilities governing an individual's behavior in disaster may be those attaching to an organizational rather than professional role. When an earthquake hit Bakersfield, California, in an August mid-afternoon in 1952, catching large numbers of people in work situations, supervisory personnel acted in a more controlled and adaptive manner than did their subordinates; their actions were more concerned with the welfare of the organization they were working for than with their own safety or that of their families. They also went back to work earlier after the quake (though some downtown buildings were reported to be dangerous to stay in), explaining that they did this as part of their job, to reassure the subordinate workers that it was safe (see Appendix B-5). Similarly, in a carbon monoxide poisoning incident in a small Chicago factory in 1952, the female supervisor of the group of women workers who were most affected by the gas, though herself equally exposed to it, gave evidence of having fought off succumbing to the effects, maintaining self-control, and, particularly, taking an organizing and reassuring role toward her subordinates (Appendix B-9).

Or the role may be one in the family system. In the same carbon-monoxide incident, an eighteen-year-old boy who was exposed to the gas, reported that he at first felt sick, but when he discovered that his mother had some of the same symptoms and needed to be taken care of, devoted all his attention to helping her and "forgot all about" his own symptoms. The importance of kinship roles was exemplified in other studies also. (See, e.g., the Brighton study, Appendix B-2).

In the disaster here under study, kinship roles were clearly of more importance than other types, since the tornado struck at dinner time, when most people were in family groups, and since family ties--not only to the immediate, but to the extended, family--are particularly strong in these essentially rural, homogeneous communities.

HOUSEHOLD ROLE

There are many possible ways of classifying a person' role in the family system, or in his particular family group. Any person may simultaneously hold several different positions in the family group, in relation to various different other individuals. In communities such as the ones here under study, where kinship ties are quite broadly extended, the network of family roles of any one individual may be quite complex. It is obviously necessary, for our present analysis, to simplify considerably. We have done so by taking not the "family" but the household as the unit--i.e., that group of related or unrelated persons who maintain a common domicile. Although clearly an individual may have responsibilities to, or be dependent, on kin who are not part of the same physical household, we shall assume for purposes of the present analysis that the closest ties of responsibility or dependency are toward those kin who are living in the same household. Thus we distinguish parents whose offspring are all full-grown and maintain separate residences of their own, from parents who have minor children living with them under the same roof. We also distinguish a grown individual who financially aids his elderly parents living in a separate household, from one who takes the same level of financial responsibility for them but maintains them under the same roof. Having in mind this criterion of responsibility for, or dependency on, household kin, we distinguish four main categories of "household role," which are ordered roughly in terms of degree of responsibility for others that attaches to the role:

A. Male head of household, with dependents other than wife:

(1) With minor children (under 15)
(2) With dependent adults who are aged (65 or over) or disabled

B. Male head of household, with no dependents other than wife (or grown children)

C. Female head of household, or wife of household head, with dependents:

(1) Female head with minor children
(2) Female head, with both minor children and older or disabled dependents
(3) Wife of household head, with minor children

D. Persons in non-responsible or less responsible roles:

(1) Wife of head, without minor children
(2) Dependent adults, 65 or over, or disabled:

(a) Male
(b) Female

(3) Persons neither responsible nor dependent: children over 18 living in household; self-supporting relatives or boarders living in household; one of two or more equally supporting adults living together in household; or person living alone (single-member household)

The sample cases interviewed distributed by household role as follows:

Table 8-1

PERCENT OF RESPONDENTS IN DIFFERENT HOUSEHOLD ROLES

Household Role	Percent of All Persons	
	In Impact	Not in Impact
Male household head with dependents	24	18
With minor children	20	15
With older or disabled dependents	4	3
Male household head without dependents (other than wife)	19	17
Female head or wife of head, with dependents	20	33
Head with minor children	--	3
Head with minor children and older dependents	--	--
Wife of head, with minor children	19	29
Non-responsible roles	37	33
Wife of head, without minor children	13	15
Dependent adults, aged or disabled		
Male	--	2
Female	--	1
Neither responsible nor dependent		
Young unmarried males	3	2
Young unmarried females	1	2
Older males (unattached)*	2	1
Older females (unattached)*	4	3
Single-member household**		
Male	4	--
Female	10	5
Number of Interviews	139	158

* Widowed or unmarried persons

** All of these persons are over 45

Because of the very small number of cases in the specific subtypes of those in non-responsible roles, this detailed classification could be used for analytical purposes to only a very limited extent.

HYPOTHESES

We would expect persons who have clear-cut responsibilities over dependents--whether minor children or aged or disabled adults--to maintain higher levels of self-control throughout the period of extreme stress, to take more adequately adaptive action, to take more action that is protective and aiding toward others, and generally to be much more the "leaders," much less the followers, in the disaster situation. In the immediate post-impact period we would expect that those having such responsibilities would be more oriented to their own immediate families first, but later the males among them would take a more active role in the emergency-phases of aid--rescue, first-aid, transportation to hospitals, etc. We would also expect these males to report less extreme affective reactions for the immediate post-impact period, but more frequent, pervasive, and longer-lasting disturbances in the later post-impact period--days to weeks later. The more responsible women we would expect to be too much involved with household family to get much involved in emergency-phase activities, but to show up strongly in later post-impact relief activities, to show moderate immediate post-impact affect but no loss of self-control, followed by later outbreaks of both physiological and psychological symptoms.

HOUSEHOLD ROLE AS RELATED TO OTHER CHARACTERISTICS

As we examine the data to discover whether the foregoing expectations are borne out, it is important to bear in mind that, although the posited differences in behavior among the role-categories of persons do, or do not, in fact appear, other factors than role responsibilities may have operated either to exaggerate or to minimize (or obscure) them. Before examining the differences among the role-categories in disaster-related behavior, it may be well, therefore, to see how these role-categories differ with respect to these other factors.

Household Role and Disaster-related Skills

As was noted in Chapter VI, differences in the incidence of disaster-related skills and training tend to vary with household role. Thus, a much higher proportion of male household heads with dependents than of persons in any other category have such skills. (See Table 6-14) This fact is significant because of the strong relationship between disaster-related skills and effectiveness of action during impact and, particularly, community orientation

in the post-impact period. This relation will, therefore, be taken into consideration when we present the findings on these topics, analyzed by household role.

Household Role and Previous Disaster Experience

Examination of the tabulations of household role by previous disaster experience showed some variations, which, however, did not fit together into any definite pattern. Besides, previous experience itself as a variable did not reveal strong enough relationships to warrant detailed consideration of it as a possible strengthening or interfering factor.

Household Role and Social Situation

Tabulation of geographic location at time of impact showed no clear relation to household role. There are some slight differences among the different roles in percent having household members "missing"--i.e., absent from the respondent--during the tornado, but the differences are too small to be considered an important biasing factor.

Household Role and Demographic Aspects: Age

Since we would expect reactions to differ considerably by age, without regard to role, it is important to know whether there are sizable age differences among the persons having different household roles. Table 8-2 presents the findings:

Table 8-2

AGE DISTRIBUTION BY HOUSEHOLD ROLE

Age	Percent of Persons in Impact Who Are					Percent of Persons Not in Impact Who Are				
	Male Heads with Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible		Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible	
				Wives Without Minor Children	Other Non-responsible				Wives Without Minor Children	Other Non-responsible
18-24	3	8	14	6	9	5	3	14	--	24
25-44	70	23	61	22	6	59	22	70	38	3
45-64	27	38	25	56	35	28	58	16	50	30
65 and over	--	31	--	17	50	3	17	--	12	46
Summary										
All under 45	73	31	75	28	15	64	25	84	38	27
All 45 and over	27	69	25	73	85	31	75	16	62	76
Estimated Number of Interviews	33	26	28	13	34	29	26	51	24	28

As the table shows, the different roles have markedly different age-distributions: in both impact and non-impact areas, male household heads and females with dependents appear much more frequently in the younger age categories; husbands and wives without dependents are considerably older, and persons in other non-responsible roles, older still. If, then, age *per se* is related to differences in disaster-related behavior, such differences *in* disaster-related behavior as are found among persons grouped in terms of their household roles may be partially accounted for by age differences rather than by role differences, or by a convergence of age and role factors.

Household Role and Loss Involvement

Regarding post-impact behavior, feeling, etc., it is peculiarly relevant to know whether, as a result of the storm, persons in the different household roles suffered different degrees of loss, in terms of bereavement, injuries to self and close kin, property destruction, and homelessness. (This determinant is discussed systematically by itself in the following chapter. Here we are concerned only with whether it impinges on the differences by household role.) The findings relating loss involvement to household role are as follows:

Table 8-3

LOSS INVOLVEMENT BY HOUSEHOLD ROLE

Type and Degree of Loss	Percent of Persons in Impact* Who Are				
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible	
				Wives Without Minor Children	Other Non-Responsible
Death Loss					
High	6	—	—	6	—
Medium	33	31	36	33	24
Low	61	69	64	61	76
Injury Loss					
High	12	8	21	11	3
Medium	39	31	36	44	18
Low	48	62	43	44	79
Property Loss					
High	64	65	54	56	74
Medium	36	35	46	44	24
Low	—	—	—	—	3
Number of Interviews	33	26	28	18	34

*Non-impact cases are not included here since their losses were generally low, and they showed no differences by household role.

We note that there are no important differences in death loss, but one difference stands: those in "other non-responsible" roles had noticeably lower injury loss and moderately higher property loss than those in other household roles. It is probable that the combined effects of these two factors cancel each other out, insofar as they influence the distribution of this role-category on aspects of action, affect, and attitude.

HOUSEHOLD ROLE AND PRE-IMPACT AND IMPACT REACTIONS

Pre-Impact Action

Examination of the data shows only very slight differences among the different household roles in the proportions who engaged in precautionary, protective, other-protective, investigative, and ongoing routine activities in the pre-impact period. Those with responsibilities for others (the first three role groups) showed slightly more action protective of others, but the difference may arise from the fact that those in non-responsible roles were more frequently alone during this period.

Impact Period Action

Considering the predominant action during the impact period, we find:

Table 8-4

PREDOMINANT ACTION DURING IMPACT BY HOUSEHOLD ROLE

Type of Action	Percent of Persons in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Protective (of self or self-with-others)	48	54	65	63
Expressive	--	--	7	6
Immobility	--	4	--	8
Number of Interviews	33	26	28	52

Table 8-5

PREDOMINANT ACTION DURING IMPACT BY HOUSEHOLD ROLE: OTHER-ORIENTED ACTION

Type of Action	Percent of Persons in Impact, Not Alone During Impact, Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Protective of others	69	31	68	23
Seeking or getting protection from others	6	4	29	37
Number of Interviews	32	26	28	35

Examination, not just of predominant action during impact but of all actions taken, reveals the same general trends, with all the percentages being somewhat higher. The differences are only in details, except that two types of action appear in the tabulations of "all actions taken" that do not appear in those for "predominant action only": uncontrolled flight, and praying (the latter was subsumed under the more general category of "seeking or getting protection from others" in the foregoing table). The tabulations for these two types of action are given in Table 8-6.

Table 8-6

UNCONTROLLED FLIGHT, AND PRAYING, DURING IMPACT BY HOUSEHOLD ROLE

Type of Action	Percent of Persons in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Uncontrolled flight	6	15	4	12
Praying	18	12	61	37
Number of Interviews	33	26	28	52

From these three tables, it seems that the four groups fall into two distinct pair combinations: male household heads with dependents and females with dependents, together, stand out from those without dependents, in that higher percentages of them gave protection to others, and lower percentages of them exhibited the incapacitating responses of immobility and uncontrolled flight. On the other hand, the four groups break into male household heads with or without dependents on one side, and females and non-responsible persons on the other, in terms of the percentages taking protective action for self or own immediate group, seeking or getting protection from others, engaging in expressive behavior (crying, shouting, screaming), and praying. This latter difference appears to be as much attributable to a simple sex distinction as to the differences in role responsibilities per se. (An independent tabulation showed only 17 percent of the impact males praying, against 49 percent of the females.) Particularly important in these findings is the confirmation of our hypothesis that those with more definite role responsibilities would be more self-controlled in the impact period and take a more active part in helping others. Females among them, however, could at the same time show higher incidence of dependency on others (usually their husbands) or on the Deity (praying), and of expressive activities (crying, screaming, and shouting).

The very high incidence of praying among the women with dependents, compared to those in the non-responsible roles, is interesting. Does prayer indicate a feeling of infantile helplessness? The fact that these women were high in protecting others would seem to contradict this. Women in these communities are more religiously-oriented than men, both in formal church-going (see Chapter II) and in everyday religious outlook. But why should these women differ so greatly in resorting to prayer from those in non-responsible roles, which include wives with no children in the household, older dependent women, and women living in independent households? One possibility is that these women were more torn than other persons between the responsibilities of their role, which required self-control and a display of self-assurance and protectiveness toward their children, and the extremity of the threat, which neither they nor their men could really handle. We shall return to this problem in connection with other comparisons at the end of the chapter.

"Leadership" in Pre-Impact and Impact Periods

Comparisons were made to determine whether persons in certain role categories were more or less likely than others to exercise leadership during the pre-impact and impact phases of the disaster. By "leadership" we refer to directing others--suggesting, advising, or urging a course of action which others follow, or initiating behavior by example which others follow. "Follower" means here one who follows, imitates, or complies with a line of action initiated, suggested, or ordered by others. We would expect to find those with greatest role responsibilities appearing more frequently among the "leaders," and those with least responsibilities or most dependent appearing more frequently among the "followers." The findings are given in Table 8-7.

Table 8-7

LEADERS AND FOLLOWERS IN PRE-IMPACT AND IMPACT BY HOUSEHOLD ROLE

	Percent of Persons Not Alone in Impact* Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Leader in pre-impact	31	27	32	11
Leader in impact	38	27	22	20
Leader in either	50	46	32	31
Leader in both	20	8	22	—
Follower in pre-impact	3	—	11	14
Follower in impact	9	4	25	23
Follower in either	13	4	32	31
Follower in both	—	—	4	6
Number of Interviews	32	26	28	35

*Omitting respondents who were alone through these periods and thus obviously could be neither leaders nor followers.

The overall direction of differences is what we anticipated: male household heads with dependents more frequently and persistently took a directing or initiating role. However, for "followers," the high percentages of females with dependents is interesting and somewhat surprising, since they also rank high as "leaders." Male household heads with dependents were also slightly more often "followers" than were male household heads with wife only; this fact further supports the impression that, in situations involving husband, wife, and dependent children, the two parents tended to direct alternately their children and each other. The differences between these two groups--males against females with dependents--as "followers" may, in fact, be less than the table suggests, since by cultural conventions a man is less likely to admit to the interviewers something like, "My wife yelled at me to get under the bed, so I did," than a woman is to admit that she followed her husband's direction. The higher percentages of "followers" among the non-responsible roles is, of course, in line with our general expectations.

HOUSEHOLD ROLE AND POST-IMPACT ACTION

Orientation in the Immediate Post-Impact Period

Non-Impact Cases

During the first half-hour after the tornado, most of the people not in the impact areas still did not know that a tornado had struck (see Chapter IV), but we can get some estimate of the extent to which persons in different household roles became aware and oriented themselves to the stricken communities by the findings given in Table 8-8.

Table 8-8

NORMAL ROUTINE VS. COMMUNITY ORIENTATION IN NON-IMPACT CASES FIRST HALF-HOUR POST-IMPACT, BY HOUSEHOLD ROLE

Orientation of Action	Percent of Persons Not in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Continuing normal routines	59	69	81	87
Oriented to general community	21	3	6	6
Estimated Number of Interviews	29	26	51	51

In the non-impact areas, it was male household heads with dependents who earliest oriented themselves away from normal routines and related themselves to the general community during the immediate post-impact period.

Impact Area Persons

Of those who were in the impact area, practically none continued normal routines in the first half-hour. During this immediate post-impact period, people in different role positions oriented themselves about equally to the general community and, with only slight differences, to absent household kin, non-household kin, and close friends. They showed some differences, however, in orientation to "self-or-self-with-others" and "household kin present."

Table 8-9

ORIENTATION TO SELF AND HOUSEHOLD KIN IN FIRST HALF-HOUR POST-IMPACT, BY HOUSEHOLD ROLE

Orientation of Action	Percent of Persons in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Self or self with others	18	35	75	35
Household kin present	33	15	25	—
Number of Interviews	33	26	28	52

Orientation 6 P.M. to Midnight

Comparing orientation to different objects in the period from 6 P.M. to midnight, we find:

Table 8-10

ORIENTATION OF ACTION TO MIDNIGHT, BY HOUSEHOLD ROLE

Orientation of Action	Percent of Persons in Impact Who Are				Percent of Persons Not in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible
Ongoing routine	—	—	4	2	21	56	61	47
Self or self with others	18	31	75	48	5	22	24	14
Household kin present	21	8	21	2	5	--	1	1
Household kin absent	15	4	4	4	10	—	1	9
Non-household kin	30	42	36	31	38	22	36	17
General community	85	73	29	42	69	56	36	41
Estimated number of Interviews	33	26	28	52	29	26	51	51

Throughout this longer period, persons in the non-impact areas continued to be largely oriented to their normal routines, with the notable exception of males with dependents. This group had the highest percentage in any of the role categories who were oriented to various types of kin and to the general community.

Among those in the impact area, women with dependents again show a tremendously higher proportion oriented to self or self-with-others. The males with dependents are highest in orientation to various types of kin, and, by an even greater margin, in orientation to the general community.

Orientation from Midnight to Dawn

The tabulations for this period simply reinforce the trends during the first half-hour after impact and during the emergency phase from six to midnight: the male household heads with dependents have the lowest percentage who resumed normal routines, and the highest percentage who were community oriented—in both the impact and non-impact areas.[1] And again the women with dependents show the greatest concern with self or self-with-others, in the impact areas.

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[1] As was noted in earlier chapters, the reader is cautioned against making too much of the findings on "orientation to the general community," since this is a broad category, which includes the relatively passive behavior of standing around looking, as well as the more obviously helpful activities of rescue, transportation of injured, etc.

Household Role and Types of Post-Impact Activity

Rescue Activity

It is to be expected that rescue work—digging out people trapped in collapsed buildings and getting them transported to medical aid and shelter—would be an activity primarily of males, and primarily, of young unattached men with few immediate family responsibilities. However, where it is a matter of trying to rescue one's own family members, we might well expect those with heavier role responsibilities to be more active than are those with less. These expectations can be checked against the findings given in Table 8-11.

Table 8-11

RESCUE ACTIVITY BY HOUSEHOLD ROLE

Type of Activity	Percent of Persons in Impact* Who Are				Percent of Persons Not in Impact* Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Direct active role in rescue work	43	30	—	14	18	3	3	—
Indirect, auxiliary role in rescue	13	9	—	10	3	—	—	—
ANY rescue work	56	39	—	24	21	3	3	—
Estimated Number of Interviews	30	23	24	42	28	24	48	45

* Counting only those not injured or incapacitated.

The table clearly shows that in both impact and non-impact areas, it was the male household heads with dependents who were by far the most active in rescue work. Why should these men have been more active than the men without dependents? Is role responsibility really the main factor? To get at this problem, we need to examine also who were the objects of rescue activity, the relative ages of the men in different roles, the relationship to prior disaster-related skills, and the area in which these people lived.

Objects of Rescue

Table 8-12 shows that those with dependents were considerably more oriented to own household members, or to any kin or intimates, in their rescue work than were those without dependents. (If the frequencies are expressed as a percent of all the persons in that role category, whether rescuers or not, the differences are still as marked: 15 percent versus four percent and 21 percent versus eight percent for household kin and any kin-or-intimates, respectively. This suggests that at least part of the difference between the two role types in rescue activity is due to the fact that males with dependents were more likely to have household family members to rescue than were those without dependents.

Table 8-12

OBJECTS OF RESCUE BY MALE HOUSEHOLD HEADS, WITH AND WITHOUT DEPENDENTS

Objects of Rescue	Percent of Male Household Heads in Impact Who Had	
	Dependents	No Dependents
Household members	29	11
Any kin or close friends	41	22
ONLY acquaintances or strangers	59	78
Number of Interviews	17	9

Age and Rescue Work

As was noted in the first part of this chapter, the male household heads with dependents in the household are a considerably younger group, on the average, than are those who have no household dependents. Is age strongly enough associated with rescue activity, then, to account for at least some of the differences for the two male groups? Table 8-13 presents the findings.

Table 8-13

PERCENT OF MALES WHO PARTICIPATED IN RESCUE, BY AGE

	Percent of Males In Impact Who Took Part In Rescue, Aged		Percent of Males Not In Impact Who Took Part In Rescue, Aged	
	Under 45	Over 45	Under 45*	Over 45**
	57	47	15	7
Estimated Number of Interviews	33	32	31	31

* All these were 25-44.
** All these were 45-64.

In the impact area a slightly greater proportion of the younger men (under 45) than of older men (45 and over) took part in rescue work. The difference is about the same for the non-impact cases. The age-differential between the males with dependents and those without may partly account for differences in the extent of rescue activity.

Disaster-Related Skills

We noted above that the young males with household dependents have a higher proportion of disaster-related skills and training. Also, in Chapter VI we saw that those with such skills were much more likely to take part in rescue work. Therefore part of the present differences in rescue activity, between males with household dependents and those without, may be attributable to the greater incidence of relevant skills.

Area as a Relevant Factor

Another relevant factor is the specific locality of the respondent: since the vast majority of the rescue work that had to be done was in the town of Judsonia, accessibility to this town would certainly tend to facilitate participation in rescue work. Table 8-14 presents the tabulations relevant to this question.

Table 8-14

AREA DISTRIBUTION OF MALE HOUSEHOLD HEADS

Area of Pre-Storm Residence	Percent of Male Household Heads Who Were in Impact, Who Had	
	Household Dependents	No Household Dependents
Judsonia	73	54
Judsonia-Rural	—	23
Boldingville	9	8
Doniphan	3	15
Number of Interviews	33	26

The importance of this distribution is seen in the tabulation of percentages of rescue activity by males who resided in the different localities:

Table 8-15

RESCUE ACTIVITY OF IMPACT MALES, BY AREA

Type of Rescue Activity	Percent of Impact Males Whose Pre-Storm Residence Was In	
	Judsonia	Judsonia-Rural
Direct active role	48	19
Indirect, auxiliary role	14	13
ANY rescue work	62	32
Number of Interviews	44	16

Boldingville and Doniphan not shown in this table since number of interviews was too small: 4 for Boldingville, 8 for Doniphan. The percentages taking part in rescue work were 75 percent and 13 percent respectively, but with such small frequencies these are not meaningful.

Since the Judsonia men were considerably more active in rescue than the Judsonia-Rural, and since a much greater proportion of the male household heads with dependents lived in Judsonia, than of those without dependents, we may conclude that some of the difference in rescue participation between these two groups was a matter of spatial opportunity.

It appears, then, that all four of the above factors--having household or other close kin who needed to be rescued, age differences, differences in possession of disaster-related skills and training, and differences in residential location--are associated with the apparent differences in rescue participation between the males with dependents and males without dependents.

However, it is not clear which of the factors--role responsibilities, age, etc.--accounts for the observed differences in disaster-related behavior. Age, for example, may not be the determining factor. It may be the other way around; the younger men by virtue of the fact that they have more familial responsibilities--rather than the fact that they are younger--may have taken more active part in rescue activities.

Volunteer Medical-Hospital Activity

Practically all of this type of volunteer work was carried on by persons not in the immediate impact area. The distribution of this activity by household role shows no material differences among persons in the several role categories.

Informal and Formal Relief Activities

Since most of the kind of aid to others included under this heading--temporary shelter, food and beverages, clothing, household furnishings, etc.--is of a sort that would usually be given by a whole household rather than just by an individual--the comparisons by household role on this topic are not very meaningful. The comparisons do, however, give some indication of the degree to which different types of households gave informal aid to kin, neighbors and others of the stricken community. Pooling together the males and females with dependents as against the male heads without dependents and the wives without minor children, no sizable differences were found in the extent of aid given.

In volunteer work with formal relief agencies--Red Cross, Salvation Army, local church groups, etc.--the women were more active than the men, but, except for this sex difference, no differences appeared in terms of household responsibilities. Persons from non-impact areas more frequently participated in such agency activities than did persons from the impact areas.

"Active Community Orientation" in the Post-Impact Period

Here we refer to the extent to which any group or category of individuals actively oriented themselves to aid disaster victims other than own kin and intimates, at any time between the end of impact and the time of the interview (one to three weeks later). This category of "active community orientation" includes anyone who participated in any one or any combination of the following activities:

- Active rescue (not just indirect or auxiliary work)
- Volunteer to hospital or medical centers
- Informal relief to other than kin or intimates

Comparisons of the role categories in terms of "active community orientation" in this sense are given in Table 8-16.

As the table shows, the differences among persons in the several role categories are more marked in the impact than in the non-impact areas. Among the impact cases, the males with household dependents clearly stand out from the rest because of the high percentage of them who show active community orientation; females with dependents show the lowest percentage. This is in line with our more detailed findings up to this point. But again this greater

participation on the part of males with dependents may be a function of their younger age, their greater concentration in Judsonia, and particularly their greater possession of disaster-related skills and training.

Impact people generally were only slightly more actively community-oriented than non-impact--55 percent against 51 percent, (not a significant difference).

TABLE 8-16

"ACTIVE COMMUNITY ORIENTATION" IN POST-IMPACT, BY HOUSEHOLD ROLE

Household Role	Percent Having "Active Community Orientation"	Estimated Number of Interviews
Impact Cases:*		
Male Heads with Dependents	75	30
Male Heads without Dependents	57	23
Female Heads with Dependents	29	24
Non-Responsible Role	51	42
Non-Impact Cases:*		
Male Heads with Dependents	61	28
Male Heads without Dependents	56	24
Female Heads with Dependents	42	48
Non-Responsible Role	54	45

* Including only those not injured or incapacitated.

HOUSEHOLD ROLE AND POST-IMPACT AFFECTIVE REACTIONS

Does the factor of familial responsibilities increase the likelihood or severity or duration of more intense emotional reactions to the disaster?

We noted above that, during the actual impact of the tornado, those who had familial responsibilities, whether male or female, were less likely to exhibit (or at least to report) uncontrolled or incapacitating reactions such as crying, screaming, uncontrolled flight or panic, or shocked immobilization.

During the immediate post-impact period, as Table 8-17 shows, the women with dependents show the most intense emotional reactions, particularly the shock-stun reaction and agitation involving loss of self-control. Agitated states during the later evening were also more frequently reported for this group. The slightly greater incidence of household members missing would not be enough to account for these differences, since males with dependents, also, had more household members missing but showed lesser emotional reactions than the females with dependents.

Table 8-17

AFFECTIVE REACTIONS IN THE IMMEDIATE POST-IMPACT, BY HOUSEHOLD ROLE

Type of Reaction	Percent of Persons in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Affective reaction immediately after the storm				
Agitated, uncontrolled	3	—	11	8
Agitated, not uncontrolled	45	46	39	48
Shocked, stunned	6	4	29	15
Any strong affect	54	50	79	71
Calm, unexcited	6	15	—	10
Affective reaction to midnight that night				
Agitated states	39	35	57	44
Shocked, stunned	9	8	14	23
Any strong affect	48	43	71	67
Calm, unexcited	—	8	4	6
Number of Interviews	33	26	28	52

Affective Reactions of Persons Not in Impact

Affective reactions are noted for non-impact cases as of the time they heard about the storm: immediately after the storm, and up to six hours later.

Table 8-18

POST-IMPACT AFFECTIVE REACTIONS OF NON-IMPACT CASES, BY HOUSEHOLD ROLE

Affective Reaction	Percent of Persons Not in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-Responsible
Immediately after knowledge of the storm				
Agitated states	38	39	61	54
Shock-stun	—	3	9	1
Any intense affect	38	42	70	55
Calm	15	6	1	9
To six hours later				
Agitated*	23	39	59	51
Calm	21	6	1	1
Estimated Number of Interviews	29	26	51	51

*No other affective states reported for this period.

Here, again, we find the females with household dependents showing the highest percentage of intense affective reactions, the differences being even more pronounced than for the impact cases. Since these women did not have a higher proportion of household members missing (as did those of the impact areas), we must conclude that the reaction has something intrinsically to do with the family role itself.

The data pertaining to affective states on the night of the storm indicate, therefore, that household role responsibilities made a difference for the women, increasing the intensity of their affective reactions, but for male household heads, they made no difference for impact cases, and slightly decreased the percent of intense affect for non-impact cases. In all cases, persons in non-responsible roles had almost as intense reactions as did the females with dependents, and these tended to be more persistent through the evening.

Later Post-Impact Disturbances

Psychological Disturbances: Affective and Cognitive

Comparing persons in different household roles on affective and cognitive disturbances lasting into the later post-impact period (any time up to time of interview), we find the following:

Table 8-19

LATER POST-IMPACT AFFECTIVE AND COGNITIVE DISTURBANCES BY HOUSEHOLD ROLE

Type of Disturbance	Percent of Persons in Impact Who Are				Percent of Persons Not in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible*	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible*
Affective disturbances	60	35	79	67	21	17	54	47
Cognitive disturbances	64	58	82	77	46	39	67	43
Any psychological disturbances	84	66	93	94	56	50	76	74
Psychological reactions lasting a week or more	48	46	82	71	21	44	44	44
Estimated number of interviews	33	26	28	52	29	26	51	51

*Further breakdown of this group into "wives without minor children" and "other non-responsible" types shows that the "wives without dependents" have consistently lower percents than the "females with dependents," while the "other non-responsibles" are more like the "females without dependents."

These data indicate that the differences in emotional reactions of the immediate post-impact period continue in the later post-impact; women with

household dependents stand out as the most affected. Those in non-responsible roles are a close second, however; but the composition of this group is so heterogeneous that it is difficult to make any clear-cut statement about it.

Physiological or Psychosomatic Reactions

Did persons in different role categories also differ in the frequency of later post-impact disturbances of organic functioning, which may have been psychosomatic in nature or mainly physiological? Comparing the groups, we find:

Table 8-20

PHYSIOLOGICAL OR PSYCHOSOMATIC REACTIONS IN LATER POST-IMPACT BY HOUSEHOLD ROLE

Type of Reaction	Percent of Persons in Impact Who Are				Percent of Persons Not in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible
Acute physical disturbance	12	12	32	21	3	11	3	1
Protracted physical disturbances	70	38	86	67	26	25	61	41
Any physical reactions	70	42	90	75	26	28	61	47
Physical reactions lasting a week or more	24	23	46	35	10	14	13	10
Estimated Number of Interviews	33	26	28	52	29	26	51	51

Again, in physiological-psychosomatic reactions, as in psychological ones, the females with dependents stand out with highest frequencies, both in the impact and the non-impact groups.

Table 8-21 summarizes all later post-impact reactions, by household role.

Table 8-21

ALL PHYSIOLOGICAL AND PSYCHOLOGICAL DISTURBANCES IN LATER POST-IMPACT, BY HOUSEHOLD ROLE

Type of Reaction	Percent of Persons in Impact in Household Role				Percent of Persons Not in Impact in Household Role			
	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible	Male Heads With Dependents	Male Heads Without Dependents	Females With Dependents	Non-responsible
Any physical or psychological reactions	94	73	94	94	59	53	77	77
Both physical and psychological reactions	60	35	90	75	23	25	60	44
Estimated Number of Interviews	33	26	28	52	29	26	51	51

MORALE AND RELATED POST-IMPACT ATTITUDES

We discussed in an earlier chapter (see Chapter VI) the problem of analyzing the "morale" of the disaster victims, i.e., the individual's sense of well-being and capacity to hold his own under stress. Following the procedure we used in that chapter, we shall attempt to use the following indices of "morale":

1. Attitudes about aid to the disaster victims--positive, mixed, or negative toward
   a
   a. Rescue, medical and mortuary activity

   b. Formal control agencies--Police, National Guard, Government, etc.

   c. Formal Relief Rehabilitation Agencies--Red Cross, Salvation Army, etc.

2. Attitudes about derivative disruptions: community services (utilities, etc.)

3. Own subjective sense of deprivation, in absolute terms or relative to others, in comparison with objective personal and property losses.

4. Sense of personal change--in values, outlook, etc.--that the respondent perceived as having occurred in himself since the storm

Attitudes About Aid to the Disaster Victims

We classified respondents' opinions regarding a whole cluster of related disaster-aid activities into three categories:

a. Positive--only favorable evaluations on these persons or activities

b. Negative--only unfavorable evaluations

c. Mixed--some favorable, some unfavorable comments, either on the same activity or on different activities within the same broader category

Tabulations of these attitudes, by household role, in relation to the three "areas" of aid--rescue-medical-mortuary, control agencies, and formal relief agencies--reveals that in all cases, though some differences appear, they are very unsubstantial. There is a very slight tendency for the females with dependents to be more negative (or at least less positive) about these

various aspects of aid than those in other household roles. The percentages suggesting this tendency would not in themselves be significant, but they are consistent with other general patterns we have already presented.

Attitude toward Disruptions of Community Services

The findings on this problem, by household role, show some noticeable differences:

TABLE 8-22

ATTITUDES TOWARD COMMUNITY SERVICES BY HOUSEHOLD ROLE

Household Role	Percent with: Positive* Attitudes	Negative* Attitudes	Estimated Number of Interviews
Impact Cases:			
Male Heads with Dependents	15	9	33
Male Heads without Dependents	19	8	26
Female Heads with Dependents	14	18	28
Non-Responsible Roles	15	6	52
Non-Impact Cases:			
Male Heads with Dependents	38	8	29
Male Heads without Dependents	22	3	26
Female Heads with Dependents	31	6	51
Non-Responsible Roles	25	3	51

* Percents for mixed are minute and show no pattern by role types.

We see that, in the impact area, women with dependents again show the most negative attitudes of all the role types, although here the relation does not appear in the non-impact area.

Subjective Sense of Deprivation:

Own Sense of Deprivation Compared to Actual Losses

A more direct indication of morale is the degree to which the respondent feels himself deprived, feels that he has sustained loss, undergone suffering, etc., compared to his actual loss as objectively regarded in terms

of deaths of loved ones, injuries to self and intimates, and property destruction. Also he may express this sense of deprivation as a comparison with possibilities—how bad it might have been--or as a comparison with what others suffered.

In the following, "high sense of deprivation" means that the respondent feels his deprivations were great or great relative to possibilities (i.e., as bad as they could have been). "Medium sense of deprivation" means that he feels his sufferings, etc. to have been moderate or slight (some but not as much as it might have been). "Low sense of deprivation" means he felt he had no deprivations or sufferings at all, or that he suffered none but some where objectively possible so that he feels he got off lucky. When comparisons were expressed relative to others, we found scarcely any individuals, regardless of their losses, who expressed a feeling that they were worse hit than others or that their deprivations were just as bad as those of others.

In the table following, we compare the different household roles not only with reference to the proportions expressing different degrees of deprivation, but also with respect to their sense of deprivation together with the loss actually sustained. Thus, the morale index revealed here is the degree of discrepancy between objectively sustained losses (as discussed in detail in Chapter IX) and the subjective sense of deprivation, especially relative to others. For example, if only 10 percent of persons in a category reported a high sense of deprivation, while 60 percent of the persons in that category objectively suffered high losses, this can be considered an index of high morale.

TABLE 8-23

SUBJECTIVE SENSE OF DEPRIVATION, COMPARED TO OBJECTIVE LOSS, BY HOUSEHOLD ROLE

Deprivation or Loss	Percent of Persons in Impact Who Are			
	Male Heads With Dependents	Male Heads Without Dependents	Female With Dependents	Non-Responsible
"High sense of deprivation"	9	23	18	10
High objective loss**	67	69	61	69
"Medium sense of deprivation"	66	62	68	65
Medium objective loss**	33	31	39	29
"Low sense of deprivation"	12	8	4	14
Low objective loss**	--	--	--	2
Felt self less deprived than others	55	35	42	46
Estimated number of Interviews	33	26	28	52

* Non-impact cases were not included here, since "deprivations" in these cases must be so different in meaning that they are not comparable.

** As defined in Chapter IX.

The favorable (in terms of morale) degree of actual objective loss with the respondent's subjective sense of deprivation is greatest for the impact area males with dependents. Also this group has the highest percentage reporting themselves as less deprived or less hard hit than others. Thus, on this index, highest morale is found among males with dependents among the various household role types, at the time of interview, some one to three weeks after the storm. We noted above that this was the household showing the highest percentage of participation in rescue work and of generally active community orientation in the post-impact period. There is probably a close relationship between these two findings: either that "high morale" enabled them to take a more active part in the activities aiding the disaster victims, or that participating in such activities itself was the basis for the "high morale," or both. Part of this relationship probably stems from the fact that those who were most active in emergency disaster aid, particularly rescue work, were exposed much more than others to perceptions of other people who were much "worse off" than themselves, people with horrible injuries, people in "shock" over the death of a close family member in the storm, etc. Since the males with dependents were the most active in this kind of work, we could expect them to use this frame of reference more often in comparing their own and other's deprivations. By contrast, women with dependents were much more tied down to their immediate family and hence much less exposed to first-hand knowledge of the sufferings of those outside their own family.

In any case, both of the differences involving male household heads with dependents--their greater community participation and their lesser subjective sense of deprivation--seem to be a function of the household role, since consideration of other possible determinants such as age and degree of loss involvement showed that these factors alone could not have accounted for both the higher community participation and higher discrepancy between actual and subjective sense of deprivation.

Changes in Values

Did people in different household roles report in differing proportions that they "felt themselves changed" since the storm? Here we consider any statements of strengthening or weakening of religious sentiments, or return to religious values from which the subject may feel he has strayed; or feeling less materialistic, attaching more importance to community cooperation, mutual aid, etc., or feeling more fatalistic about life. Examples are:

Religious changes:

> It has brought to me, more than ever, a realization, I have always tried to live Christian, but it has brought to me the realization of the need to be prepared for death, — know not what minute it will come and we should all try to be ready when a thing like this does happen. (Case B-342, p. 23)

> I believe I think more of my Lord than I did. (Case B-314, p. 35)

Other changes:

> You probably never know unless you really have the experience to try to help...but I believe that most of us can go and help and do what we can...really didn't think we could before. (Case B-246, p. 37)

> (Have you changed any of your ideas?) No. Well, in a way too. I feel more that my folks are more important than the fine things of life. As long as I've got them I won't worry about the furniture and stuff like that. (Case B-310, p. 22)

The frequencies for most of the very specific types of such changes in values were too small to permit comparison by family role types. However, if we combine specific categories of changes into some general category—"any changes in values" and, within this general category, set up a sub-category—"any religious change"—we can then derive the different percents of each role category who reported any type of change and, more specifically, any type of religious change (all religious changes were in a positive direction).

Table 8-24

RELIGIOUS AND OTHER CHANGES IN VALUES BY HOUSEHOLD ROLE

Household Role	Percent Reporting		
	Religious Changes	ANY Changes	Estimated Number of Interviews
Impact Cases			
Male household head with dependents	21	36	33
Male household head without dependents	8	8	26
Females with dependents	35	57	28
Non-responsible	31	42	52
Non-Impact Cases			
Male household head with dependents	13	23	29
Male household head without dependents	22	39	26
Females with dependents	33	42	51
Non-responsible	21	26	51

Thus it is the females with dependents in each general category of change who report the most changes in both impact and non-impact areas. This is consonant with the fact that this was the group who prayed most during impact, and who in many other respects reported themselves most affected by the storm.

Other Attitudes Related to Morale:

Naturalistic versus Supernaturalistic Interpretations of the Storm

It would be well to discuss at this point the question of how individuals interpret the significance of the storm. Specifically: did persons occupying different household roles also differ in the extent to which they "explained" the tornado in naturalistic or in supernaturalistic terms? Respondents were asked what they thought had caused the storm, why it did as much damage as it did, why some were hit so hard and others in apparently identical situations were scarcely touched. Some gave answers that were couched entirely in naturalistic terms (although not necessarily scientifically adequate, still referring primarily to meteorological and other natural phenomena).

Others phrased their answers mainly, or at least in part, in supernaturalistic terms: references to the "will of God," "God punishing the wicked," "a higher power," etc. Some combined both of these types of answer, usually in response to different questions. The frequencies are too small to give a fine breakdown of detailed responses; but classification into two main categories will show up the differences between the different household roles. We distinguish in our tabulation those who gave only naturalistic responses to any of these questions from those who gave any supernaturalistic references, even though the latter might have also made naturalistic references.

In the non-impact area, role categories do not differ materially here; in each of the roles roughly about a third gave each of the main categories of response. The impact cases, however, do show a distinction, as shown in the following table:

Table 8-25

NATURALISTIC VERSUS SUPERNATURALISTIC EXPLANATIONS OF THE TORNADO BY HOUSEHOLD ROLE

Household Role (Impact Cases Only)	Percent Reporting		
	Naturalistic Interpretations Only	Super-Naturalistic Interpretations	Estimated Number of Interviews
Male household head with dependents	58	24	33
Male household head without dependents	69	8	26
Females with dependents	21	46	28
Non-responsible	33	33	52

Male household heads revealed much more frequently naturalistic conceptions about the storm; females with dependents were more supernaturalistic, while those in non-responsible roles divided about evenly between the two kinds of explanation.

The finding is in line with the preceding one showing females with dependents reporting greater percentages of religious changes. Those in non-responsible roles are again closer to the women with dependents in their percentages on this factor.

Overall Picture on Morale and Related Attitudes

Any picture we present here must be rough and tentative, since there is no assurance that the measures we devised are "good" indices of morale; nor do we know their relative significance. But with this caution in mind, we can point out the main implications of this portion of our data.

Women with dependents were most affected by the storm, particularly those who were actually in impact. They showed least frequently positive attitudes about disruption of community services and, to a slightly less extent, about the various aspects of emergency post-impact aid. They reported proportionately the greatest number of religious changes, and of changes of any kind in values or self-conception, and were the most religious or supernaturalistic in their interpretation of the significance of the storm.

Thus, two factors are evidently at work here: role responsibilities and sex differences. The heavier role responsibilities affected the women by making them lean more heavily on supernaturalistic powers, have somewhat less positive attitudes toward the human agencies of aid to the disaster victims, and be more upset in their daily routines by the disruptions of utilities and other community services. Males with dependents evidently felt an increased sense of responsibility as a result of the storm, as indicated by their more active community participation, showed "higher morale" by their greater tendency to understate their deprivations in their own subjective view of the event, and by greater persistence in viewing the tornado and its effects in essentially naturalistic terms. These differences do not show up as strongly for those who were not in impact.

SUMMARY OF THE SIGNIFICANCE OF HOUSEHOLD ROLE IN DISASTER BEHAVIOR

We shall try to draw together the various findings presented in this chapter, on the significance of household role in various aspects of behavior, affect, and attitude before, during, and after the disaster. Necessarily we shall simplify and omit detailed qualifications we have noted above, to point up the more prominent differences and particularly the trends which, while not necessarily always showing large quantitative differences, show these differences consistently over a variety of factors.

In the pre-impact and impact periods, both male household heads and females who had dependents in the household tended to be more other-protective in their action than those without such responsibilities, even if allowance is made for the situational factor of presence or absence of others there to be protected. Also, compared to those in other household roles, they showed much less tendency toward uncontrolled flight, and no instances of frozen immobility. The females with dependents, however, in contrast to the males with dependents, showed considerably more of expressive behavior, dependency on others, and resort to prayer. Male household heads with dependents showed the highest incidence of "leadership" of all household role types during these periods; while the highest percentages of "followers" occurred among females with dependents and among those in non-responsible roles.

In the post-impact period, the male household heads with dependents were again notably different from those in other roles: they showed the most community-oriented activity, which is notable in being oriented not just to their own dependents, but to the community at large. Especially they show the highest participation in rescue activity. (However, this difference may be only accidentally or indirectly related to role type, since these persons are characterized by their younger age, greater possession of disaster-related skills, and greater areal concentration in the town of Judsonia—all factors that may have independently affected their participation in rescue activities.) Also, wives without dependents in the household are more community-active than women who have dependents in the household.

In affective reactions: the women with dependents stand out as notably different from those in other household roles: during impact, though they are high in expressive behavior and praying, they show no important loss of self-control as compared with other women or others in non-responsible roles. But immediately following the storm, they show the highest incidence of really intense affect, including loss of self-control and the "depressive" reactions of "shock, stun, daze," and none reporting themselves as calm or unexcited. This applies to them also for the period up to about midnight that night, though the differences for this later period are less marked. In the areas outside of impact, women in this household role again appeared the most emotionally disturbed of any role group, while the men with dependents were the calmest. In the impact area, men with dependents were somewhat more affected emotionally in the immediate post-impact period than were men with no household dependents other than wife, but they correspondingly had greater incidence of household members absent at the time of the tornado.

Following through affective and related reactions into the later post-impact period, we find again that the women with dependents were the most affected by both physiological-psychosomatic types of disturbance and affective-cognitive disturbances of all kinds, and also that for this household role group, such disturbances tended to last longer into the post-impact period, than for persons in other household roles. (At the opposite pole—i.e., showing the least of such disturbances—are the male household heads without household dependents other than wife.)

This group, the females with household dependents, stands out also in a number of different attitudes regarding the post-impact situation:

They are the least positive toward the formal relief-rehabilitation agencies and other aspects of aid, particularly toward the disruption of community services. They also seem to feel themselves most affected in a long-range way by the disaster: they have the highest percentages reporting themselves as "changed" since the storm, in either religious or other terms, and also the highest percentages giving supernaturalistic "explanations" of the storm, its intensity, differential impact, etc.

By contrast, the male household heads with dependents showed an almost entirely different pattern: they tended to be more positive in attitudes toward external agencies handling the post-impact problems at points where the women with dependents were most negative; and they were most likely of all the household role types to understate their losses and deprivations, in their subjective estimate of them as compared to the objective facts involved.

The women with dependents, then, would seem to be the family group in the population to which most attention should be paid in considering ways of alleviating post-impact stress. We would suggest that it is largely <u>because</u> they have dependents to worry about—usually young children—that they are more susceptible to both the immediate and the derivative stresses of the disaster. Unlike their husbands they cannot as easily go out into the wider community and gain a sense of mastery over the disaster by actively pitching into the strenuous emergency activities, such as rescue work, and are usually too burdened down with the needs of their own family to participate in even the less demanding types of community relief, such as rolling bandages at the medical centers or sorting relief clothes for the Red Cross. Instead they find themselves in an unusually dependent position, especially if their homes have been destroyed or even badly damaged, while still having to take responsibility for their children—there is in fact even more responsibility than usual since their menfolk are likely to be preoccupied with the more active community work. Their position is especially acute in the immediate post-impact period if any members of their household family have been separated from them during the tornado, and they are faced with the task of finding out about their whereabouts and safety, while still having to take care of other children. In other words, this is the role type that would be most likely to face intense conflicts during and after the actual impact of the disaster: to give vent to their own terror versus having to put on a front for the sake of reassuring the dependents; to take care of present dependents versus running to search for missing household members or even non-household kin; to take care of one's own family needs versus doing something to alleviate the overall stress of the

whole community, with which they have very close ties. Faced with the cares of the household as the dominant requirement of their formal kinship role, they are confronted with a situation in which many or all the ordinary reference points of the daily household routines have disappeared. Their home is destroyed or badly damaged. Public utilities are disrupted. The household resources may be overtaxed to take care of other disaster victims. Particularly, they find themselves handicapped, if not helpless, to do much in the way of mastering the situation. Nor are they in a position to elicit sympathetic concern from others, since most of the others are in just as bad a position, if not worse, so that it is difficult to feel justified in complaining about the situation. The disruptions of utilities are obvious topics of concern for the housewives or other women with household dependents in their concern to get the household back to something more like normal functioning.

By contrast, older wives without children in the household—or younger wives who do not yet have any children—are freer to make improved arrangements, and particularly to participate in volunteer relief work which gives them a sense of solidarity with the community and of mastery of the trauma. Also, persons in other non-responsible positions are either mobile enough to focus their attentions away from the household itself, as in the case of younger unmarried persons, or can without too much conflict take a dependent role, as in the case of elderly or disabled persons.

Significant, then, are the higher percentages of women with household dependents, reporting religious interpretations of the storm, prayer as a major activity during impact, and a subjective sense of personal change in values or outlook that is phrased in religious terms.

Whether wives or themselves household heads, who have dependents in the household, this is likely to be, generally, a group most in need of reassurance. Attention needs to be given to ways of giving them a sense of control over the situation.

This seems important since, at first glance, one would expect the aged and disabled, because of their peculiarly dependent position, to be the most problematical part of the population in the matter of post-disaster care.

According to our present analysis, these people—who are included in our summary category of "non-responsible" roles—do not appear to have been as much under stress in the disaster as the women with dependents. Perhaps they do not have to feel conflicted about being dependent in the disaster situation since the culture tends to define such dependency as legitimate, and even more so under conditions of community crisis. (The factor of age is probably important here also, since the women in this category are generally quite young (20-44) and are expected by themselves and others around them to be able to take stresses better than older persons of either sex, while still they are not in the commanding position in their own households.)

Also noteworthy is the finding that it was men with dependents, and consequently those with maximal involvement in the disaster in terms of effects on their own families, who showed indications of the greatest degree of overall community orientation, whereas it has frequently been assumed that the less attached males, with greater freedom of movement and only moderate involvement in terms of kinship ties, would be the most active in work aiding the general community.

CHAPTER IX PERSONAL INVOLVEMENT AS A DETERMINANT OF DISASTER BEHAVIOR

We would expect people to vary in their behavior, feelings and attitudes during and in the aftermath of disaster, according to just how and how much they were personally involved in the disaster.

In this chapter we shall isolate two main aspects of personal involvement and examine how these are related to differences in behavior and feelings. If we ask how hard a person was objectively hit by the disaster, we might first break this question down into two distinct elements: first, how much danger he was actually in during the impact of the disaster itself, and second, how heavy were his losses, in lives of loved ones, injuries to self and loved ones, and property loss and homelessness. An attempt has been made to define both of these aspects in terms of the objective situation faced by the individual during or after the storm (rather than in terms of the person's subjective reactions to the situation). We shall refer to these two factors as "Danger Involvement" and "Loss Involvement."

INDICES OF DANGER INVOLVEMENT

Throughout the preceding chapters we have already in effect been considering degree of danger as a control variable, in the distinction we have made in all instances, between "impact" and "non-impact" cases, i.e., between those who were located directly in the path of the tornado, and those who were only on the periphery or in adjacent localities. This, however, is only a very crude, overall distinction. Among the impact cases themselves, some persons were much more critically threatened than others, by the way the tornado hit the spot where they were located and, more specifically, by the particular kinds of effects the tornado had upon structures.[1] A more detailed index of degree of danger can, therefore, be based on the kinds of wind effects respondents reported perceiving during the impact period--effects upon the respondents themselves, upon other persons who were with them during impact, and upon the structure in which they were located.

Some qualification should be made on the adequacy of a picture of the objective external situation the respondent faced based on his own account of his experiences during the storm. Clearly this account contains some undetermined degree of overlay of the respondent's subjective interpretations. In this instance, however, the extent of such bias should not be overestimated,

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[1] As noted in Chapter II, the vast majority of the impact population were located inside houses--usually their own homes--or other types of structure at the time the tornado struck.

since getting people to tell what objectively happened to them (and around them) was the least difficult problem in interviewing disaster victims. It was unlikely, unless the respondent was unconscious during impact, that he would fail to mention (or unduly distort his account of) such things as the house vibrating, walls caving in, himself and others with him being hit by flying debris, etc. if these things actually happened. Regardless of the distortions present, there is evidence that the descriptions of events do reflect the actual experiences of the respondents.

Table 9-1 presents the findings on the percent of impact cases who reported perceiving each of various types of wind effects upon themselves, others, and the structure they were in (any respondent may have reported two or more of these effects).

From these data, we can distinguish those who noted wind effects upon themselves personally (trapped, blown about, etc.), from those who noted wind effects only on other persons but not on self, from those who reported effects only on structures but not on persons. These are 37 percent, five percent and 52 percent of the impact area respondents, respectively. Since more than two-thirds of those who reported wind effects on others also reported wind effects upon themselves, we can conveniently combine together these two groups into one category—those reporting wind effects upon persons (as distinguished from wind effects upon building only.)[1] This gives us two groups, comprising 42 percent and 52 percent of all the impact cases. In the comparisons and tables that follow, we shall refer to these two groups as "Extreme Danger" and "High Danger" groups respectively.

[1] It should be noted that about two-thirds of those who reported wind effects on persons <u>also</u> reported wind effects on the house or other structure they were in.

Table 9-1

RESPONDENTS' PERCEPTIONS OF WIND EFFECTS UPON SELF, OTHERS, AND STRUCTURE, DURING IMPACT

Effects		Percent of Impact Respondents Reporting
Effects Upon Respondent Himself		
Trapped by cave-in or fallen structure		3
Blown away (actually carried some distance by the wind)		12
Knocked down or about by force of the wind or movement of house		18
Struck by flying debris		18
Total percent reporting any of these wind effects upon self	37	
Effects Upon Others Who Were With Respondent		
Others trapped, blown away, knocked down or about or struck by flying debris		17
Perceived effects on others, but none on self noted	5	
Total percent reporting wind effects on self and/or other persons	42	
Effects Upon Structure Respondent Was In		
Whole structure, or major portions, collapsing, being blown away, caving in, etc.		53
Minor structural parts falling, being torn away (plaster, glass, porch, furniture)		67
Structure moving, vibrating, lifting up, etc.		63
Total percent reporting any of these effects on structures, but none on persons	52	
No observations of any of these types	6	
Number of Interviews	139	139

INDICES OF LOSS INVOLVEMENT

The other main dimension of personal involvement considered in this chapter is the losses the individual suffered as a result of the tornado. If we consider the variety of ways in which people could be involved in the disaster according to loss--deaths of close relatives, and of friends; degree of injury to oneself, to various relatives and to friends; types of injuries; degree of property damage and kinds of property lost--the number of possible combinations of these several variables mounts up rapidly. To make sense of our findings in this respect, we selected criteria to be used in condensing these variations into a more limited number of categories. Each case was, therefore, categorized as high, medium, or low on each of the three main variables: death loss, injury loss, and property loss. The criteria for the categories are as follows:

Death Losses:

High: A first-degree relative was killed in the storm or in the immediate aftermath; i.e., spouse, mother, father, offspring, or sibling. (If any other relative or close friend, etc. was also killed, in addition to the first-degree relative, the cases are classified here.)

Medium: No first-degree relatives killed, but any other relative or "intimate" (as previously defined) was killed: this includes grandparents, grandchildren, uncles, aunts, cousins, nephews, nieces, and in-laws, as well as anyone specified as being affectionally very close to the respondent ("my best friend, a very dear old friend," etc.).

Examples:

> We didn't see P. until later, and she had already heard that her mother was killed. That was the only very close relative—I mean anyone in the family that was killed. The rest of us wasn't even hurt. (Case R-132, p. 10)

> We found him [respondent's grandson] on about 25 steps out in the yard.... He was dead minutes after he hit the ground.... (Case R-146, p. 1, 5)

> (Any friends that were hurt here?) Yes, we have some very good friends. My wife had just been visiting with Mrs. L., a friend of hers the day before...she and her 17-year-old son were both killed. (Case R-250, p. 4)

It will be noted that some of the "Medium Loss" cases might more properly be placed in the "High Loss" group. This is true, for example, of the case of death of a grandson quoted immediately above. However, it was desirable to use an objective basis of

classification which, in spite of individual misclassifications, would give an overall grouping not dependent upon the analysts' previous conceptions or hypotheses.

Low: No deaths among relatives or close friends. People who were merely acquainted with disaster victims who were killed, are counted here.

Injury Losses:

High: Any serious injuries to self, spouse or household kin: this includes loss of limb or eye, skull fracture, concussion, severe lacerations or punctures, internal injuries, and compound or multiple fractures.

Examples:

> He /respondent's husband/ tried to hold the...collapsing building /up/ when it was too much for him...and that ruptured his side. (Case R-154, p. 16)

> I wasn't hit nowheres only on my hip here and it was bad, this leg was cut in several places, I was bruised all over...a limb hit me on my shoulder, bruised it.... (Case R-302, p. 8)

> He /respondent's son/ had a big hole in his head, the scar is growing up...he was bleeding all over and I was scared to death about him, afraid he was hurt seriously, you know. (Case R-302, p. 6)

Medium: No serious injuries (as defined above) to self, spouse or other household member, but minor injuries to any of these (i.e., simple fractures, bruises, sprains and slight lacerations, cuts, punctures and scratches, or any other injuries not classified as serious).

Examples:

> ...just some glass scratches is all, just minor scratches on my face.... (Case R-138, p. 13)

> He had been hurt all right...had a knot on the back of his head and one on his shoulder, kind of cracked his shoulder blade.... (Case R-202, p. 2)

> My two kids...came out at...one of 'em had infected ears and the other got a little glass puncture, is all ...that really happened to them. (Case R-168, p. 3)

Low: No injuries to any of respondent's household, other than at most aggravation of ailments or injuries already incurred before the storm.

Examples:

> [A distant relative was killed, but] the rest of us [in the family] wasn't even hurt. (Case R-132, p. 10)

> There wasn't a thing that we had, not a thing you know alive, that got hurt, you know, two dogs, a horse, cat and three of us that was there, my grandmother and grandfather across the street, well none of my family was hurt, except some distant cousins. (Case R-192, p. 6-7)

> I have a nervous stomach alright, but I can't eat just like I used to eat...I had that before the storm [respondent implies it is worse since the tornado]. (Case R-207, p. 20)

Property Loss and Homelessness:

High: Complete or almost complete destruction of own house if owned by respondent or household member; or destruction of major income-producing outbuildings (barns, silos, etc.) or business property and inventory (store, merchandise, etc.).

Medium: Destruction of house that is only rented as living quarters by respondent and his household (i.e., homelessness but not actual property loss of house); or minor to serious but not complete damage to owned home, outbuildings or business property; and/or major damage or destruction to any other property (minor outbuildings, livestock, car, house furnishings, personal possessions, documents, objects of sentimental value, etc.).

Examples:

> It just tore [the house] all to pieces. [Not owned by respondent, only rented.] (Case R-154, p. 12)

> ...and the tree down there, it split my garage open, and I don't know how they fix that back or not. (Case R-106, p. 1a)

> Well, it broke out seven window panes...and the whole plaster in this room upstairs and down on this back side here is broke...in my two bedrooms the papers is all broke in there...quite a few shingles took out...just left holes in the roof. (Case R-202, p. 8)

Low: No major destruction or damage, or substantial depletion of any type of property; but may include here minor damage to

any type of property other than house, major outbuildings or business structures or inventory; or no property loss at all.

Examples:

> Well, 'course we wasn't in the storm, but it did blow pretty hard here...the house shook pretty much at one time [but no damage]. (Case R-004, p. 1)
>
> [Practically all of the non-impact cases who were not even on the periphery of the storm, fall into this loss category.]

From the twenty-seven different combinations into which cases may fall on being classified on each of these three variables, we have condensed to four main categories for the impact cases and to two categories for the non-impacts:

Impact Cases:

A. High Personal Loss:[1] High on deaths and/or on injuries, regardless of level of property loss.

B. Medium Personal Loss:[1] Not high on either deaths or injuries, but medium on either (regardless of level of property loss).

C. High Property Loss Only: High on property loss and low on both deaths and injuries.

D. Other Loss

Non-Impact Cases:

I. Some Loss[2]

II. No Loss: Low on deaths, injuries and on property.

While most of the comparisons in this chapter are among the overall loss involvement categories, on some topics a more detailed breakdown by type of loss (death, injury or property) seemed relevant. We present the latter type of analysis only where it might modify the picture of the overall loss categories in some significant way. Where the detailed breakdown is not presented, it may be assumed that it does not alter the overall picture presented.

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[1] Most of these are also high on property loss.

[2] None of the non-impact cases are high on death or injury loss.

Tables 9-2, 9-3, and 9-4 present the percentage distribution of the sample cases in each of the loss categories:

Table 9-2

PERCENTAGE OF IMPACT AND NON-IMPACT CASES IN EACH DETAILED LOSS CATEGORY

Loss Category		Percent of All Persons In Impact	Percent of All Persons Not in Impact
Death Loss:	High	2	—
	Medium	31	10
	Low	67	90
Injury Loss:	High	11	—
	Medium	32	1
	Low	57	99
Property Loss:	High	63	4
	Medium	36	7
	Low	1	89
Number of Interviews		139	158

Table 9-3

PERCENTAGE OF IMPACT CASES IN EACH OVERALL LOSS CATEGORY

Loss Category	Percent of All Persons in Impact
A. High personal loss	13
B. Medium personal loss	47
C. High property loss only	22
D. Other loss	17
Number of Interviews	139

Table 9-4

PERCENTAGE OF NON-IMPACT CASES IN EACH OVERALL LOSS CATEGORY

Loss Category		Percent of All Persons Not in Impact
I. Some loss		19
a. Medium personal loss	11	
b. Property loss only	8	
II. No loss		81
Number of Interviews		158

DANGER AS RELATED TO LOSS INVOLVEMENT

It is reasonable to expect that those who faced more extreme dangers during impact were also more likely to be injured or killed, or to have loved ones who were with them injured or killed, or to have more serious property destruction, or to experience all of these losses.

As may be seen from Table 9-5, the expected relationship does exist and this fact tends to support the assumption that the reports and the classifications used reflect, at least in part, the objective differences in the respondents' situations. It is true that the difference in death losses between the extreme danger and high danger groups is small. This is, however, a function of the fact that--(1) the number of deaths was fairly small in total so that large differences could not be expected to occur; and (2) many of the deaths and injuries on which the loss classification is based were deaths or injuries of persons (including close relatives) who were not with the respondent at the time of impact (persons not members of the respondent's household or household members from whom he was separated during impact). There is also the factor of households where no interview could be obtained because all adult members of the household had been killed. The bias due to non-representation of households with members killed in the tornado is, however, extremely small, since only one of the households originally selected for the sample could not be interviewed for this reason and, in the other cases of death in the household, an interview was obtained from one of the surviving adults.

Below are considered the relationships to disaster behavior of first, danger involvement, and second, loss involvement.

Table 9-5

DANGER AS RELATED TO DEATHS, INJURIES, AND PROPERTY LOSS

Losses		Percent of All Persons in Impact Who Faced: Extreme Danger	High Danger
Death Losses:	High	5	—
	Medium	29	33
	Low	66	67
Injury Losses:	High	22	3
	Medium	53	17
	Low	25	81
Property Losses:	High	76	54
	Medium	24	44
	Low	—	1
Number of Interviews		59	72

THE RELATIONSHIP OF DANGER INVOLVEMENT TO OTHER POSSIBLE DETERMINANTS

Before proceeding to examine the relationship of danger involvement (as here defined) to aspects of impact and post-impact behavior, it is desirable to determine whether the degree of danger is also related to other factors which might conceivably be important as causal agents in the actions, feelings, etc. we are examining. It is always possible that, even if there is a substantial difference on some aspects of behavior between those who faced extreme danger and those who did not, the differences may actually be attributable to some factor other than the danger itself. Conversely, if there are only slight or no differences between the two danger groups in a given form of behavior, it is possible that some difference that might otherwise appear has been obscured by the fact that people in the two danger categories differ substantially in some other characteristic, the effects of which work in the opposite direction from those of danger itself.

Danger as Related to Age and Sex

Table 9-6 shows that there are some differences in the age-sex characteristics of the extreme-danger group as against the high-danger group.

Table 9-6

DANGER INVOLVEMENT AS RELATED TO AGE AND SEX

Age	Percent of All Persons in Impact Who Faced					
	Extreme Danger			High Danger		
	All	Male	Female	All	Male	Female
18-24 years	5	9	—	8	6	11
25-44 years	44	47	40	35	39	31
45-64 years	39	32	48	31	33	38
65 and over	12	12	12	26	22	31
Number of Interviews	59	34	25	72	36	36

Sex	Extreme Danger	High Danger
Males, all ages	58	50
Females, all ages	42	50
Number of Interviews	59	72

It will be noted that the more extreme danger group has proportionately more of both males and females in the 25-44 year age group than has the high-danger group. It also has a higher proportion of males generally, than has the high-danger group. Both of these facts are important in interpreting some of the relationships that follow in this chapter, for certainly we may expect reactions to the disaster to be different for those in the prime of life from reactions of older persons. There is also evidence that the reactions of males differ from those of females.

Danger and Household Role

A preceding chapter examined differences in reactions among the disaster population according to the different positions persons held in the kinship system, distinguishing particularly those whose normal family role gave them responsibilities for dependents, those who had such responsibilities but were also in some sense dependent, and those who were dependents primarily. We may ask, then, for the discussion of danger, whether the danger categories differed in their distribution of persons in these different household roles. Table 9-7 gives the findings:

Table 9-7

DANGER AS RELATED TO HOUSEHOLD ROLE

Household Role	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Male household head without dependents	15	24
Male household head with dependents	34	17
Female (household head, or wife) with dependents	24	18
Wife of household head, without dependents	12	10
Persons in other non-responsible roles	15	31
Number of Interviews	59	72

We note from this, that the extreme-danger group has a considerably higher percent of male household heads with dependents, and a slightly higher percent of females with dependents, than the group who were in less extreme danger. This is important in considering differences between the danger groups on aspects of behavior. The differences associated with degree of danger may be, at least in part, a result of differences in household role, since those in the more responsible household roles were more likely to take during impact, actions protective of others. It is also possible that, in doing things to protect dependents, persons in more responsible roles thereby exposed themselves to greater danger. Thus, it is desirable to examine, in each specific instance, whether the differences associated with degree of danger run in the same direction as the differences associated with role responsibilities.

Danger and Disaster-Related Skills

It is also possible that differences associated with degree of impact period danger, may depend on background characteristics of the respondents and, particularly, on disaster-related skills. With respect to this variable, there is, however, only a very slight difference between the extreme-danger and the high-danger groups—36 percent of the former, against 28 percent of the latter, having some kind of disaster-related skill (as defined in Chapter VI).

Danger and Social Situation

Differences that appear between the danger groups may also possibly be related to ways in which the danger groups differ on characteristics dealing with the social situation they were in during the impact period. Therefore, we examined the percent of each danger category who were alone versus who were with others during impact, and also the percent who were in groups of various age-sex composition, during the period. We found that a slightly smaller percent of the extreme-danger people than of the high-danger group, were alone during impact (7% versus 15%). As for group composition, each of the types of group composition (as defined in Chapter VII) constituted roughly the same percent of the extreme-danger group as of the high-danger group, with two exceptions: Males in groups with other adult males, females, and children, and females in groups with adult males only: each of these represented a higher percent of the extreme-danger group than of the high-danger group (the former had 15% versus 3%; the latter 10% versus 4%). Or, put another way, a much higher percent of the males who were with other males, females, and children, and a somewhat higher percent of females who were with adult males only, faced extreme danger during impact, than was true of persons who were in other types of group situations during the period (81% of these males, 67% of these females, as against 40-50% of persons in other group situations).

Summary of Relationship of Danger Involvement to Other Variables

We found that the extreme-danger group, as compared with the high-danger group, had a heavier concentration of males, and of both sexes in the age-group of 25-44 years. They also include greater proportions of both males and females who have responsibilities for dependents, in their household role. In addition, they are slightly more likely to have disaster-related skills and/or training. All of these would suggest that the extreme danger group contains more mature people who would behave in a more controlled manner, take more action protective of others, exhibit more leadership, and show greater community orientation in the post-impact period.

DANGER AS RELATED TO AFFECT DURING IMPACT

Keeping in mind the qualifications previously made about the dependability of respondents' reports of their own emotional reactions, findings on the relationship between affect reported and degree of danger, are as shown in Table 9-8.

As the table shows, the only difference in affect, of any note, between the extreme-danger and the high-danger groups, was in the percent reporting themselves as feeling highly agitated but not uncontrolled. This difference must not be overestimated since the distinction between a "high" degree of agitation and a "moderate" degree was very difficult for coders to make with any real reliability and the total percent reporting "any agitated states" is almost exactly equal for the two groups.

Table 9-8

AFFECT DURING IMPACT BY DEGREE OF DANGER PERCEIVED

Affective State	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Any agitated state	68	66
Agitated, uncontrolled	--	2
Highly agitated, but not uncontrolled	51	32
Moderately agitated, but not uncontrolled	17	32
Shocked, stunned (not due to physical concussion)	7	6
Confused, bewildered	12	4
Unconscious or dazed by physical concussion during at least part of impact period	5	--
Calm, unexcited	15	22
Number of Interviews	59	72

However, since the extreme-danger group contains more males and younger people generally than does the high-danger group, and we would expect higher levels of self-control from males and younger people, the difference in percent reporting highly-agitated states assumes a greater significance, and supports the hypothesis that more intense affective reaction would be associated with greater degree of danger.

AFFECTIVE STATES IN THE IMMEDIATE POST-IMPACT PERIOD

Did the tornado victims show any differences in their emotional reaction during the period immediately following the storm, according to the degree of danger they faced during the tornado? The findings are given in Table 9-9.

This table is revealing in that, for the post-impact period, the only difference between the extreme-danger and the high-danger groups appears not in the agitated types of reaction, but in the "shocked, stunned" reactions, those in more extreme danger reporting this type of reaction more frequently for both the period immediately following the storm, and for the "emergency phase" after that, up to about midnight that night.

Table 9-9

AFFECTIVE REACTIONS IMMEDIATELY AFTER IMPACT
AND UP TO SIX HOURS LATER BY DEGREE OF DANGER

Affective State		Percent of All Persons in Impact Who Faced		
		Extreme Danger		High Danger
Immediately After The Storm				
Agitated, uncontrolled		7		4
Agitated but controlled		44		47
Any agitated states	51		51	
Shocked, stunned		22		8
Calm, unexcited		8		6
Up to Midnight That Night				
Agitated		46		43
Shocked, stunned		20		11
Other affective states*		2		7
Calm, unexcited		7		1
Number of Interviews		59		72

*Includes such things as "feeling pity for the people."

Lest we jump to the conclusion that this difference in the degree of shock-stun reactions can be attributed to the differential severity of threat faced by these people during the tornado itself, we need to recall the other variables with which degree of danger shows some relationship. Most obviously, the extreme-danger group suffered greater losses, in injuries to self and loved ones, and in property destruction, than the high-danger people, and this could be expected to arouse greater affective reactions in the post-impact period when the extent of these losses was discovered. Further the heavier concentration of the extreme-danger group in household roles involving responsibilities for dependents, would likewise predispose us to expect more severe affective reactions, in terms of the concern these people would show for the fate of members of their household. Higher injury loss would include injuries to loved ones, and, for those with household dependents, these loved ones would probably be close household kin, another factor predisposing toward more severe affective reactions in the immediate post-impact period.

We note elsewhere in this chapter (see below) that those with the most extreme losses (high on deaths and/or injury losses) showed by far the greatest percentage of shock-stun reactions in both the immediate post-impact period and the emergency phase to midnight that night. The findings of the previous

chapter on relationship of affect to household role, suggest that greater shock-stun reaction was associated with females with dependents and that male household heads with dependents showed the least frequency of such reactions. Considering the proportion of males--and particularly, of male household heads with dependents--in the extreme-danger group, we should expect a relatively low proportion of shock-stun reactions on the basis of household role alone. Thus, it seems likely that the greater shock-stun reaction of the extreme danger group is a resultant of either danger or loss involvement, or of some combination of both these factors.

Danger and Immediate Post-Impact Action

Tables 9-10 and 9-11 present the relationship between extremity of danger during impact and the types and orientation of action of the respondent in the immediate post-impact period—i.e., the period from about a half-hour after the storm (about six-o'clock that evening) to about six hours later. This period is selected as being long enough after to permit recovery from the worst extremity of the impact, while remaining within the "emergency phase."

Table 9-10

ORIENTATION OF ACTIVITIES FROM SIX TO MIDNIGHT, ACCORDING TO IMPACT DANGER

Orientation of Activities*	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Self or self with others	51	36
Household kin present during impact	17	8
Household kin absent during impact	7	7
Non-household kin	42	28
Others in general, or community in general	61	51
Property--own or that of household kin	10	18
No indication of orientation of action	--	7
Number of Interviews	59	72

* Categories are not mutually exclusive.

Table 9-11

TYPE OF MAJOR ACTIVITIES FROM SIX TO MIDNIGHT, BY IMPACT DANGER

Type of Activity	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Received		
Emergency relief	39	31
Rescue	5	—
Medical aid	15	—
Performed		
Emergency relief	44	49
Rescue	32	15
Medical aid	10	—
Search for missing	34	24
Transportation of injured	8	3
No type of activity reported	—	7
Number of Interviews	59	72

The tables show that, as might be expected, those in more extreme danger during impact were more likely to be concerned with themselves and their own immediate family in the emergency post-impact phase, and to be more in need of emergency relief, medical care and rescue services, than those who were in high but less extreme danger during impact. However, they were also somewhat more likely to be oriented to non-household kin and to other people in general--i.e., to the general stricken community--in this phase, and more likely to participate in rescuing, or giving first-aid or transportation to the injured, and to search for missing kin or friends. They were less likely to be mainly concerned about their own property during this phase than were those whose danger during impact was concentrated on wind effects on their house or the structure they were in.

In view of the findings just presented about differential affective reactions of the extreme-danger group as against the high-danger group (the former showing greater proportions of "shocked, stunned" reactions) it is interesting that the extreme-danger group shows greater participation in the rescue work and transportation of the injured (much of which, of course, may be for their own family members), as well as in first-aid for the injured. It appears from this that those who were most involved in the sense of facing the most extreme dangers during impact itself, were also more involved than

others in the emergency disaster work during the immediate aftermath of the tornado.

This relationship is also supported by the data of Table 9-12 which shows various aspects of active community orientation in the whole post-impact period.

Table 9-12

ACTIVE COMMUNITY ORIENTATION AT ANY TIME IN POST-IMPACT PERIOD BY DEGREE OF IMPACT DANGER

Type of Activity	Percent of All Persons in Impact Who Faced: Extreme Danger	High Danger
Direct active role in rescue work	36	10
More indirect role in rescue work	5	8
Any rescue work	41	18
Informal relief aid to kin or intimates	27	15
Informal relief aid to others	34	32
Any informal relief aid to individuals	49	42
Volunteer with formal relief agencies	8	8
Any "active community-oriented activity"* in post-impact	59	43
Number of Interviews	59	72

* Includes direct active role in rescue, volunteer work at formal relief agencies or at hospitals or medical centers, and informal relief aid to individuals outside own kin and intimates.

Here we have further evidence that those who faced more extreme dangers were more active in rescue work, at any time that night, and particularly in the more direct active roles in rescue work. We find too that taking the whole post-impact period up to the time of the interview (though this was not true for just the night of the storm itself) that the extreme-danger group were more active in giving informal aid to their own kin and intimates, than those who faced only high danger; but they were about equally active in giving aid to individuals outside the family or intimacy circle. And they were equally

likely (a low percent in any case) to give volunteer services to the formal relief agencies (this latter tended to be more an activity of the non-impact people, the impact cases usually acting in a much more direct and personal way to the disaster victims both inside and outside the family circle). Considering those who took part in any of the activities included in the category of "active community orientation" (i.e., active work of any kind to alleviate the stress of the disaster victims generally, not just those of own family or friends) we find the extreme-danger group again participating more frequently than the high-danger people.

Thus, for those who were actually in the full force of the tornado and survived it, the higher the involvement in terms of the degree of danger faced during the storm, the higher seems to be the involvement in the sense of activity to alleviate the stress of members of the stricken community. While this activity seems to be initially oriented to own family and close friends, it quickly extends also to the entire disaster-stricken community.

We may ask now what is the relevance of the fact that degree of danger tends to be associated with degree of injury and property loss involvement, and with the more responsible family roles, as well as with a greater proportion of males and of younger people of both sexes than the less extreme danger group. As for loss involvement, we note below the findings that those most highly involved in terms of personal losses tended to be somewhat less community-oriented in the immediate post-impact period than those with lesser losses (though the other three loss categories were all very much the same). In types of post-impact activity, we find that those least loss-involved show slightly less rescue activity, particularly of the direct active kind, and slightly less informal relief to kin or intimates, but otherwise there are no pronounced differences among the loss categories. The bearing of this on the findings on danger involvement, then, is that the slightly greater community orientation of those in extreme danger could not be explained as a function of their also having higher loss involvement, for the latter variable would have produced the reverse effect. However, the higher degree of active rescue work and of informal relief aid to kin and intimates is what could be expected on the basis of the differences in loss involvement that are associated with the differences in danger.

The relationship to household roles shows a bearing on community orientation in the immediate post-impact period, and upon rescue and informal relief activities generally for the post-impact period. As indicated in the preceding chapter, male household heads with dependents were the most oriented toward the community generally in the immediate post-impact period, and the most active in rescue work, informal relief aid to individuals, and generally, in the overall factor of "active community orientation." Since there is a greater proportion of persons in this household role in the extreme-danger group as compared to the high-danger group, we must interpret cautiously, the findings that the extreme-danger people show higher percentages on each of these factors. However, the extreme-danger group also contains a somewhat higher proportion of females with dependents, and this group does not at all show up as more actively community-oriented in the post-impact period. Thus, if household role were operating as a factor in the association of degree of danger with these various

activities, the presence of females with dependents among the extreme-danger cases would tend to reduce the percentages exhibiting various aspects of active community orientation. It is possible that this is what has happened, considering that the differences by degree of danger are not as clearcut as those involving male household heads with dependents.

Considering the factors of age and sex, we noted that the extreme-danger group has a larger concentration of younger people and of males. We note too, that it is precisely these groups that were more actively community oriented in the post-impact period (particularly the younger males in rescue activity). Therefore, the findings that the extreme-danger group were more community-oriented both in the immediate and in the later post-impact periods must again be qualified to note the possible influence of the age-sex distribution on this result.

To the extent that the extremity of danger may itself be the effective factor (or more probably, one of several effective factors), we must still add this further caution about the findings of its association with greater community orientation. Such greater community orientation may be regarded as something of an index of greater "solidarity." However, this effect of accentuating solidarity, derived at least in part from the sharing of the same or similar extreme experiences, may depend strongly on how "closely-knit" the disaster communities already were, i.e., how much solidarity they already had, before the disaster. There is considerable evidence that the general level of such solidarity in these very homogeneous and essentially rural-familistic communities before and apart from this disaster, was quite high. Considering this, it is extremely doubtful if we could extrapolate this finding to refer to any populations of a type different from those of the essentially rural and homogeneous Arkansas communities studied. Specifically, there is no evidence that a metropolitan urban or suburban population, would show the kinds of differences we have noted here. It is quite possible that without existing close ties of the sort that obtained in White County, those who faced the more extreme dangers in a disaster might well show less community orientation in the post-impact period.

DANGER INVOLVEMENT AND LATER SYMPTOMATIC REACTIONS

We noted above, that those in more extreme danger during impact showed more affective reactions of the shock-stun type during the immediate post-impact period, than did those who were in less extreme danger. We may ask now whether the differences between these two groups, though moderate at most, persisted into the later post-impact period in the form of different incidence of various types of symptomatic reactions (physiological, psychosomatic, cognitive and affective).

Table 9-13 gives a summary of all cases who had any reactions in the form of disturbances of organic functioning, on the one hand, or any psychological disturbances, and those who showed any symptoms of either general kind. Tables 9-14 and 9-15 present some of the details of these reactions.

Table 9-13

SUMMARY OF PHYSICAL AND PSYCHOLOGICAL DISTURBANCES IN LATER POST-IMPACT, BY DEGREE OF IMPACT DANGER

Type of Disturbance	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Any physiological or psychosomatic*	76	65
Any psychological (cognitive or affective)	81	90
Any disturbances of any type	88	92
Both physical and psychological disturbances	69	63
Number of Interviews	59	72

* These include, besides the protracted disturbances detailed in Table 9-14, any acute reactions, and any aggravation of pre-storm ailments.

Table 9-14

DETAILS OF PROTRACTED PHYSICAL SYMPTOMS BY DEGREE OF IMPACT DANGER

Type of Reaction	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Bowel-bladder disturbances	10	3
Loss of appetite	37	21
Headaches	27	14
Respiratory disturbances (colds, etc.)	24	11
Fatigue	10	8
Sleeplessness	48	46
Generalized malaise	22	10
Number of Interviews	59	72

Table 9-15

DETAILS OF LATER POST-IMPACT COGNITIVE AND AFFECTIVE DISTURBANCES BY DEGREE OF IMPACT DANGER

Type of Reaction	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Inability to concentrate	39	39
Forgetfulness	19	19
Thinking about the storm	46	45
Obsessive thinking about the storm	7	4
Thinking about possibilities of a new storm	5	10
Work incapacitation	15	22
Any cognitive or related disturbances	68	74
Shock, stun, daze	20	8
Nervousness, excitability	54	42
Depression, "feeling blue"	5	11
Anxiety dreams, nightmares	19	19
Hypersensitivity to storm cues	31	35
Any affective disturbances	63	61
Number of Interviews	59	72

From Table 9-13 we see that, although the differences between the extreme-danger and the high-danger groups are not large, they run in opposite directions when considering physical as against psychological types of symptomatic disturbances. Further, from Tables 9-14 and 9-15 we see that the differences in the physical disturbances, when broken down by detail, all run in a consistent direction, while the psychological disturbances vary considerably by detail.

Looking first at the physiological or psychosomatic disturbances, we may first ask whether the differences by degree of danger during impact are not simply a reflection of post-impact conditions of physical exposure and stress that happen to be positively related to impact period danger. We have noted already that the extreme-danger group had higher property losses, on the average, than the high-danger group. This would lead us to expect that they had more severe shelter problems in the aftermath of the storm, and thus were more exposed to the elements, lowering resistance to various kinds of physical ailments. Checking our tabulations on factors related to this, we find that

there were in fact considerable differences between the extreme-danger group and the high-danger group on several relevant factors. Table 9-16 summarizes these findings.

Table 9-16

POST-IMPACT EXPOSURE AND SHELTER PROBLEMS REPORTED, BY DEGREE OF IMPACT DANGER

Problem Reported	Percent of All Persons in Impact Who Faced	
	Extreme Danger	High Danger
Received some kind of temporary shelter	83	60
Shelter disruption specifically noted as a derivative problem of the storm	56	51
"Exposure" specifically noted as a derivative threat later the night of the storm	24	7
Number of Interviews	59	72

It thus appears that difficulties of shelter and exposure were more prevalent among those who had faced extreme danger during the storm, and these alone may be enough to account for the differences between the danger groups in extent of various kinds of disturbances of organic functioning reported in the post-impact period. It is possible, of course, that psychological factors associated with the extremity of the threat also contributed to a lowering of resistance, or that they are being expressed directly (especially in such symptoms as loss of appetite and sleeplessness) but it cannot be stated with any strong assurance from the data on physical disturbances alone. However, the fact that the extreme-danger group is also higher in the relative frequency of some types of affective disturbance would somewhat support such a view.

Relating this finding to the data on symptoms according to loss involvement (treated later in this chapter), we note that the impact cases with the least loss involvement are considerably lower in incidence of physical symptoms than any of the higher-loss categories. Since degree of danger faced is related to degree of loss in injuries and property, the symptom differences between the extreme and the high danger groups may then be a reflection of either the danger factor or the loss factor, or some combined effect of both of them.

Turning to psychological symptoms, the picture varies considerably in the details on types of symptomatic reactions. Cognitive and related reactions show scarcely any difference between the extreme danger and the high-danger groups. Affective reactions show differences some of which run one way; some, the other, and all are moderate at most. The more important differences show the extreme danger group having higher percentages reporting the shocked-stunned reactions and the nervous-excitable (or agitated) reactions.

Thus, while the overall figures for "any psychological reactions" show higher percentages for the high-danger group than the extreme-danger group, the details of the reactions suggest that the more important or significant differences run the other way, and thus are consonant with the differences in physical symptoms.

Keeping in mind our usual caveats about these findings, we may note, however, that results are consistent with what has been presented above on emotional reactions in the immediate post-impact period--where, at least on shocked-stunned reactions, the extreme-danger group showed higher incidence than those in less extreme danger. While the data are ambiguous, there is evidence that the differences seemed to persist into the later post-impact period, as well as to be accompanied by a greater incidence of the various types of physical disorders. This last aspect shows up in the greater percentage of the extreme-danger group (than of the high-danger group) who report both physical and psychological symptoms of some kind (69% against 63%).

How does this relate to the other variables with which degree of danger showed some relationship? The comparison of the different degree of loss involvement for the impact cases (presented later in this chapter) showed that overall, there are no differences worth noting, in percentages reporting psychological disturbances. In the details, cognitive disturbances follow no clearcut pattern, and affective disturbances are slightly less frequent with the lower levels of loss involvement. The latter corresponds with the finding for danger involvement, and again suggests that it may well be loss, alone or in combination with danger, that makes for the small differences in affective reactions that do appear.

Turning to consider the relationship to role responsibilities, we find that it is the females with dependents who show the most of each of the types of post-impact reactions, physical and psychological. These constituted a slightly higher proportion of the extreme-danger cases than of the high-danger. However, it was the males with dependents who showed the least of the various kinds of symptomatic reactions and they constitute a still greater proportion of the extreme-danger cases as compared with high-danger. Thus, it is unlikely that any of the differences between the danger groups on symptomatic reactions are attributable to different proportions of the main household roles. Similarly the excess of males and younger people in the extreme-danger group as compared to the high-danger group, should make for less rather than more of the various types of symptoms.

In the sense that these symptomatic reactions represent incapacitation

for normal duties and thus represent problems for control in the post-impact period, we may conclude from our findings here that those who faced the most extreme danger would be, in a similar disaster, those most in need of attention in the period after the critical emergency has passed. These needs are important, precisely because they are not as dramatically insistent as are those of the injured, and because those who have such symptoms are likely to feel that their problems are trivial compared to obvious injuries and that they cannot legitimately complain about them. Where the latter type of feeling exists, the symptoms themselves may be even more incapacitating in the long run, and may represent a continuing aftermath of the disaster for some considerable time.

Relationship of Loss Involvement to Other Variables

Following the procedure we have used on other variables, we examine first the relationship of loss involvement to the other major variables we are considering.

Loss as Related to Age and Sex

Table 9-17 gives the age distribution of the loss involvement categories. Since the non-impact cases show no differences in age distribution worth mentioning, they are not presented here:

Table 9-17

LOSS INVOLVEMENT BY AGE

Age	Percent of All Persons in Impact With			
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss
Under 45	45	47	23	71
45 and over	55	53	77	29
Number of Interviews	18	66	31	24

As we see from the table, those with high property loss only, include a considerably larger proportion of persons of 45 or older, than do any of the other loss categories. Table 9-18 presents the sex distribution of the impact cases. (Again, the non-impact cases showed no important differences in sex distribution, by loss categories.)

Table 9-18

LOSS INVOLVEMENT BY SEX

Sex	Percent of All Persons in Impact With			
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss
Male	44	52	51	58
Female	56	48	49	42
Number of Interviews	18	66	31	24

As we see, there are slightly fewer males in the high personal loss group, and slightly more in the medium loss group.

Loss as Related to Household Role

Examination of the distribution of the loss categories by household role showed no noticeable differences among the different loss categories by household role.

Loss Involvement as Related to Situational Factors

Aside from differences in background, it is also possible that those who suffered different degrees of loss differed in some aspects of their situation at the time of the impact of the tornado. Without commenting on the possible causal relationships involved, we may note the following.

Location at Time of Impact: Table 9-19 presents the distribution of the impact cases according to loss involvement and their location at time of impact.

The table shows that a considerably lower proportion of the medium-loss cases (as compared to the rest) were in Judsonia at the time of impact, and considerably higher proportion of them were in Doniphan at the time. This would, of course, have some bearing upon immediate post-impact activities, such as rescue work, which would necessarily be somewhat limited, if not determined, by spatial location.

Table 9-19

LOCATION AT IMPACT AND LOSS INVOLVEMENT

Location	Percent of All Persons in Impact With			
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss
Judsonia	78	64	65	42
Judsonia rural	--	12	19	13
Doniphan	5	8	3	42
Boldingville	17	15	13	--
Other locations	--	1	--	4
Number of Interviews	18	66	31	24

Household Members Missing: Table 9-20 indicates whether people who sufferd different levels of loss, were also different in the extent to which they had household members "missing"--i.e., located somewhere away from the respondent--during the impact of the storm. Separation of household members would, of course, make a difference in immediate post-impact activities, and is presumably also a factor in affective reactions in the post-impact period.

Table 9-20

LOSS INVOLVEMENT AND HOUSEHOLD MEMBERS MISSING DURING IMPACT

Members Missing Or Not	Percent of All Persons in Impact With			
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss
Had household members "missing" during impact	28	27	28	8
No household members "missing"	72	73	72	92
Number of Interviews	18	66	31	24

Here again, we find that the impact cases with only moderate losses (low on personal losses, medium or low on property loss) differ considerably from all the high-loss groups, in that a significantly smaller proportion of them had household members missing during the storm.

Summary of Relation of Loss Involvement to Other Variables

We find then that the impact cases with high property loss only have a higher proportion of older people than any of the other loss categories; and that, for the impact cases, the proportion of females in the group is greater with greater loss involvement. Non-impact cases do not differentiate on these variables. There is no relationship of loss to household role. Lower percentages of the medium-loss impact cases were in Judsonia during the storm, or had household members missing during the storm.

LOSS INVOLVEMENT AND IMMEDIATE POST-IMPACT AFFECT

We should expect those more severely loss-involved to show more severe affective reactions in the immediate post-impact period; particularly we should expect that they would be more often uncontrolled in their agitation, or be subject to states involving a reduction of consciousness (those classified here as "shock" or "stun" reactions). The findings on this topic are presented in Tables 9-21 and 9-22.

Table 9-21

IMMEDIATE POST-IMPACT AFFECTIVE REACTIONS BY LOSS INVOLVEMENT

Type of Reaction, Immediately After the Storm	Percent of All Persons in Impact With			
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss
Agitated, uncontrolled	11	6	3	4
Agitated, controlled	22	50	55	38
Any agitated state	33	56	58	42
Shocked, stunned	44	12	6	4
Any strong affect	77	68	64	46
Calm, unexcited	—	9	6	13
Number of Interviews	18	66	31	24

Table 9-22

AFFECTIVE REACTIONS LATER THAT NIGHT, BY LOSS INVOLVEMENT

Type of Reaction Up to Six Hours After Impact or Knowledge of Storm	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Agitated	39	48	39	42	43	48
Shocked, stunned	44	12	13	4	—	—
Any strong affect	83	60	52	46	43	48
Calm, unexcited	—	6	6	—	2	6
Estimated Number of Interviews	18	66	31	24	30	128

The table shows that our expectations are somewhat borne out, for the impact cases. The non-impact cases, for whom only the period up to six hours after knowledge of the storm has been tabulated, show no differences of any note between those with "some losses" and those with little or no loss, and none of those reporting affective reactions reported the shock-stun type of reaction. For the impact cases, the relationship between degree of loss involvement and affective reaction is particularly marked with respect to shock-stun reactions, both for the period immediately after the storm and for the period up to about midnight that night. Those with high personal losses show distinctly higher percentages of shock or stun reactions in both periods. Since the agitated and stunned states cannot (by definition) occur simultaneously, the high personal loss cases show a lower prevalence of agitated states, although they do have a slightly higher percent of agitated-uncontrolled state for the immediate post-impact period. If property loss only is taken as a lower (or equal) loss involvement than medium personal loss, the relative frequency of "any strong affective reaction" (i.e., a summary of any of the agitated or shocked states) decreases with degree of loss involvement.

Examples of these quite different types of reactions are as follows:

Coded as "shock-stun" reaction:

> The shock, got me so much, so bad that...it was several hours before I could kinda, you know, get back to my--regain my consciance back to where I was, you know, to know and to understand what had happened... (Case R-302, p. 8)

Coded as "agitated but not uncontrolled:"

> ...So we went on to Bald Knob and found out aunt's house had blown away...went to Mrs. P's brother's and their house had blown away, so we was all quite excited by then... (Case R-236, p. 6)

> ...Of course as far as the scared part, we was all scared... (Case R-202, p. 3b)

While the high-personal-loss group has a higher proportion of females (56%) than any of the other loss categories, and this may account to some extent for the higher percentages of shock-stun reactions in this group (since females more often than males reported this type of reaction), the sex differences do not seem to be enough alone to account for the affective differences, which we must consider as related in some way to the loss involvement itself. We noted in the earlier part of the chapter, however, the positive relationship between degree of danger faced during impact and the level of losses resulting. It is possible that some of the difference in shock reactions has to do with having faced more extreme dangers during impact, or more probably, the combination of having faced extreme danger during impact and of having intimates injured or killed, or oneself severely injured.

LOSS INVOLVEMENT AS RELATED TO IMMEDIATE POST-IMPACT ACTION

We should expect that the greatest degree of active orientation to the stricken community would come from those who were rather heavily involved in the disaster but not so seriously as to be overcome completely by their own personal tragedy. This would point, in terms of the categories we have developed here, to those of the impact cases who had high property losses but not high personal loss; and in the non-impact cases, to those who had some losses as opposed to those who had little or none. We shall discuss various indices of this active orientation toward the general community in the immediate and later post-impact period.

Community Orientation the Night of the Storm

Table 9-23 shows the percent of each loss category who reported carrying out some kind of activities oriented to the general community during three successive phases in the immediate post-impact period. "Community orientation" here had a very broad reference, in the way it was coded: besides such active help as rescue, transportation of injured, first aid, etc., it included such relatively passive behavior as standing around looking at the results of the storm, watching the rescue work, etc. However, it does give a rough indication of how many were not exclusively absorbed in their own or immediate family problems.

Table 9-23

COMMUNITY ORIENTATION IN THE IMMEDIATE POST-IMPACT PERIOD, BY LOSS INVOLVEMENT

Period	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
First half-hour after the storm	17	29	32	21	24	4
Next six hours	39	64	52	50	71	41
To dawn the next day	6	17	19	8	27	12
Estimated Number of Interviews	18	66	31	24	30	128

The findings support the hypothesis. Of the impact cases, it is those with the two middle levels of loss—medium personal loss and high property loss with low personal loss—that consistently show the higher percentages of community orientation through each of the time periods; and, among the non-impact cases, those with some losses showed notably higher percentages oriented to the general community than those with little or no losses. It should be noted, apropos this latter finding, that the non-impact cases included many persons who did not find out about the storm until the next day.

LOSS AS RELATED TO COMMUNITY-ORIENTED ACTIVITIES FOR THE WHOLE POST-IMPACT PERIOD

We turn now to examine the relationship between loss-involvement and specific types of other-oriented (and, particularly, community-oriented) activities, occurring not just the night of the storm but at any time in the post-impact period up to the time of the interview. Combining all such activities gives a rough measure of what might be called "informal leadership" in the post-impact period,—that is, indicates which people could most be counted on to "dig in" (both literally and figuratively) and aid the stricken community.

Rescue Activity

We would expect that rescue activity would be the work primarily of those highly involved, those who themselves had kin or intimates trapped or believed to be trapped in collapsed buildings—that is, rescuers trying to free particular persons in particular relationships to themselves. Another group orienting themselves to anyone trapped in the wreckage would be persons rather highly involved in the sense of at least high property loss but not with the most extreme personal losses.

Table 9-24 presents the findings on percentages of each loss category who took a direct active role in the rescue work, and those who took a more indirect or purely auxiliary role in the rescue work (as defined in earlier chapters).

Examples of the more direct active rescue work, and the more indirect or auxiliary type, are as follows:

More direct rescue work:

> Then I dugged around there and helped get the people, uncovered bodies, worked pretty near all night. (Case R-142, p. 2)

Indirect, auxiliary rescue work:

> I got one boy hurt, and we had to go out there and get him, picked him up and carried him into the next house. Then a girl with a broken leg, trying to save them, and helping

pick up the other people too, and we was carrying them on cots and trying to get them to a doctor. (Case R-163, p. 1b)

Table 9-24

DIRECT AND INDIRECT RESCUE ACTIVITY, BY LOSS INVOLVEMENT

Type of Activity	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Direct active role in rescue work	22	23	26	4	20	1
Indirect, auxiliary role in rescue work	11	8	—	13	—	1
Any rescue work	33	31	26	17	20	2
Estimated Number of Interviews	18	66	31	24	30	128

If any participation in rescue work is taken as an index, there are relatively small differences according to loss involvement for the impact cases. But, if we look only at "direct active role in rescue" those who had only medium or low property loss and low personal loss, were considerably less active than those with high or medium personal or high property loss.

For the non-impact cases, there is a clearcut difference between those who had some losses and those who were low on all three factors, deaths, injuries and property loss—the latter had practically no participation in rescue activity. This is scarcely to be wondered at, since most of the low-loss cases were located in areas such as Searcy which were not at all hit by the storm, and from which it would have been difficult to get to the stricken areas in the immediate aftermath of the storm (the period in which practically all of the rescue work was done). Those with "some loss" were more likely to be people who were on the periphery of the storm, closer geographically and therefore more accessible to the worst stricken impact areas. It is to be noted that their degree of participation in rescue is almost as high as for the three higher-loss involvement groups of the impact area.

For the impact cases, it is noteworthy that a high percentage of those with high personal loss engaged in rescue work (especially direct active rescue), since this group includes those who were themselves injured,

many of them seriously. A separate tabulation indicates that the injured had just as high participation in rescue work as any of the rest of the impact population. Though respondents who did so seldom made a point of this in accounts of their own activity, many pointed out with admiration, cases of people who had just been rescued themselves, turning around immediately and helping dig out others who were trapped, disregarding their own possible injuries. Thus, although the percentage of participation in rescue is roughly the same for the high-personal-loss, medium-personal-loss and high-property-loss groups, taking into consideration the incapacitation of many of the high-personal-loss group, we may say that participation in rescue work varied directly with the degree of loss involvement.

Since the high personal loss group had a lower proportion of males than any of the other loss categories and since rescue work was almost exclusively the work of men, the proportions of the high-personal-loss group who did participate in rescue take on all the more significance. On the other hand, one of the situational factors points in the same direction as the loss differences: i.e., the medium-loss group had a lower percentage located in Judsonia at the time of the storm, and therefore were less likely to be geographically accessible for the rescue work.

Mortuary Activity

Here we are considering those who reported that they actually handled the dead physically. Most of this activity was in connection with rescue work. For example:

> Than I dugged around there...uncovered bodies, worked pretty near all night. (Case R-142, p. 2)

> And we just begin to help neighbors...gather up the dead and the wounded. (Case R-334, p. 2)

Table 9-25 presents the distribution of this type of activity by loss involvement.

There are no differences in extent of mortuary activity by loss involvement for the non-impact cases, and only a moderate difference for the impact cases—i.e., those with lesser loss involvement were less likely to engage in any of this type of activity. But it is to be noted that the percentages reporting such activity were in all events very low, so that not much emphasis should be placed on the differences that appear.

For the impact cases, differences in mortuary activity are in the same direction as the differences on rescue activity proper, and the cases tend, in fact, to overlap—i.e., those who did participate in mortuary activity also were active rescuers.

Table 9-25

MORTUARY ACTIVITY, BY LOSS INVOLVEMENT

	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Participated in direct handling of dead	17	18	13	4	5	3
Estimated Number of Interviews	18	66	31	24	30	128

Medical-Hospital Activity

While persons participating in medical and hospital activity include cases of regular hospital and other medical (and mortuary) personnel, the tabulations presented below are restricted to volunteer activities. The category of medical volunteers does include, however, nurses or practical nurses not regularly employed in hospitals, who volunteered their services to hospitals or medical centers in the aftermath of the tornado. It also includes all private individuals who volunteered either services or supplies to the hospitals or medical centers.

Examples are the following:

> After I heard about it on the radio, I went down to the hospital. I knew they would need help. I'm a nurse, I worked there up till last year, when I got married. I couldn't find anyone in charge, so I just pitched in, helped in receiving, finding them a place on the floor...

> When we heard the sirens my daughter went over to the hospital. Pretty soon she came back and said they needed quilts and blankets. We got some from upstairs, and she took 'em over.

As noted elsewhere in the report, the greatest proportion of this activity occurred during the night right after the storm.

A breakdown of these volunteer cases by loss-involvement shows that all but one of them fall into the low-loss non-impact category, where they constitute 14 percent of the estimated 128 sample cases of that class, (the one other case was a high-property-loss impact case).

This concentration is strikingly different from the distribution by loss involvement of persons who engaged in other types of community-oriented activity in the post-impact period.

The most obvious explanation for this concentration may be the fact that (as explained in Chapter V above) all the local hospitals and improvised medical centers were located in Searcy, a non-impact area, so that the people nearest at hand to engage in such activities would be non-impact low-loss cases. People who felt any need to explain why they did not volunteer for medical-hospital activities, were practically all (all but one) non-impact cases; and, of these, the vast majority gave as their reason the quantity of help. For example:

> I didn't go on up to the armory [improvised medical center] and help because they had all the help they needed up there. (A woman in Searcy; Case B-342, p. 6)

A minority mentioned that they felt themselves incompetent (compared with others) to do such work. Considering the objective evidence regarding the medical work presented in Chapter V, the reference to quantity is probably a realistic appraisal of the question.

Though the factor of competence was not often mentioned by those explaining why they did not volunteer for medical work, we would hypothesize that this is a major element in the difference in frequency and distribution of this type of volunteer activity. Many more people felt a need to explain not participating in rescue or organizational relief activities. These along with informal relief--especially giving shelter and food to the homeless--were evidently the more obvious things people felt they could do to help out in the situation, whereas medical activity would be more likely defined as a job for professionals. Perhaps too, there was some fear of confronting the task of care for the injured, even though only as an auxiliary to professionally trained personnel. A possible basis of such feeling would be an increased sense of helplessness to handle the situation--since many of the injured would be difficult to help--which would not be true of such other active endeavors as rescue and giving shelter, food and clothing, etc. The factors of competence and geographic location, are possible explanations of why those with heavier losses did not participate in any volunteer medical work, while they did in considerable measure "dig in" in rescue and relief work.

Informal Relief Activities

"Informal Relief Activities" refers to giving individual aid to storm victims, in the form of temporary shelter in one's own private home, food, clothing, furnishings, help in rebuilding damaged property, aid in salvaging possessions blown about by the wind, and any other help in recovering from the effects of the tornado. Examples are:

> We worked on until midnight getting the bales of hay hauled...into the hay shed. (Case B-250, p. 2)

We moved her things all over here in the house from that little house over there. (Case R-202, p. 2)

Then we brought his wife [wife of known friend] over to her mother's. (Case R-246, p. 6)

They didn't have no place to stay, so we just brought them all down here. (Case R-98, p. 5)

Table 9-26 shows the extent to which people in the different loss categories gave informal relief or rehabilitation aid to their own kin or intimates, to others outside this circle, and also the percentage who gave such individual aid to <u>any</u> disaster victims.

Table 9-26

INFORMAL RELIEF ACTIVITIES, BY LOSS INVOLVEMENT

Type of Activity	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Informal aid to kin or intimates	28	23	26	13	34	27
Informal aid to others	17	39	39	25	54	25
Informal aid to <u>any</u> individual persons*	39	50	55	33	66	37
Estimated Number of Interviews	18	66	31	24	30	128

* This is not a direct sum of the two above categories, since any respondent could have aided both kin or intimates, and others.

As the table shows, the differences among the impact cases, by loss involvement, are only moderate, and are not consistent when considering different objects of this type of aid. While for the non-impact cases, those with some losses are consistently more succorant than those with little or no losses, toward both kin and intimates, and comparative outsiders. For the impact cases, those in the two middle levels of loss involvement--i.e., those who had medium personal losses, or high property loss only--were the ones that stood out with higher percentages giving aid to both types of objects, but the differences are moderate at best. Those with high personal losses were just as high as the next two groups on informal aid to their own kin and intimates, but lower on aid to comparative outsider--a finding not to be wondered at. Those with only medium or low property loss and low personal

losses, were lower in each category of aid.

Considering the informal aid to people outside the immediate family or friendship circle, our findings are in line with the hypothesis that extending aid to individual disaster victims requires being oneself hard enough hit by the storm to "feel with" the disaster victims, and at the same time not so severely loss-involved by bereavement and injury, as to be unable (for either physical or emotional reasons, or both) to give any adequate aid to other disaster victims. It is particularly significant that by far the highest percentage giving aid to other than kin or intimates (or to any individual disaster victims) appeared in the non-impact group who had some losses. This group would have themselves suffered sufficient loss to identify intimately with the victims and, on the other hand, were relatively free of physical or emotional incapacitations.

Volunteer Work with Formal Relief Agencies

A different way of helping the disaster victims was by volunteering for work with the formal relief and rehabilitation agencies. Examples are:

> We commenced to help prepare food for the Red Cross... different groups of us worked there for a week... (Case R-342, p. 6)

> I came back and went down to the Methodist Church which served as headquarters and worked with the Salvation Army the remainder of the night and the next day... (Case R-150, p. 2)

> I worked two different place...Church of Christ and... Salvation Army. (Case R-202, p. 20)

We would expect that the pattern for participation in volunteer work with the formal relief agencies—mainly Red Cross and Salvation Army, but also including various church groups—would be different from that of rescue work and informal personal relief aid. To help others by joining in a formal organizational effort is in its nature a more indirect, less personal way of giving aid to disaster victims (although different organizations vary a good deal among themselves in the degree of informality with which they dispense aid in such disasters). We might, therefore, expect, that the agency volunteers would come more predominantly from people less heavily involved in the disaster—in this case from non-impact as compared to impact, and from the low-loss categories more than from the medium or high.

As can be seen from Table 9-27, the differences in percentage participating in volunteer work with formal agencies are not a matter of loss-involvement, but are primarily a simple break between impact and non-impact cases, the latter showing considerably higher percentages participating. For the impact cases (although there are minor differences according to loss involvement categories) all the percentages are low. Thus, it would appear that where one was, rather than the degree of loss suffered (although these are of course related), made the difference in extent of participation in this aspect of aid to the disaster victims.

Table 9-27

VOLUNTEER WORK WITH FORMAL RELIEF AGENCIES, BY LOSS INVOLVEMENT

	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Volunteered with formal relief agency	6	12	—	8	20	21
Estimated Number of Interviews	18	66	31	24	30	128

Post-Impact "Leadership"

Since, as pointed out in earlier chapters, there is no clearcut, single index of leadership behavior for the post-impact period, we shall again use as a measure of "active community orientation" participation in any one or more of the following activities:

- Active rescue work (not including merely auxiliary work or vague references to "our getting them out")
- Volunteer to hospital or medical center
- Informal relief to people other than kin or intimates
- Volunteer work with formal relief-rehabilitation agencies.

We would hypothesize that community-oriented behavior would be most prevalent in individuals with sufficiently high loss involvement to be sympathetically identified with the disaster-struck community and at the same time not so incapacitated as to be unable to give the kinds of aid needed.

The findings are definitely in the predicted direction. The highest percentage participating in any one or combination of these activities appears for the non-impact cases who suffered some losses and next highest percents are for those in impact who sustained medium personal losses or high property losses only.

It is interesting that about half of the impact cases and of the non-impact cases, took part in some way in giving aid to the disaster victims. This is a rather high proportion, and is no doubt at least partly dependent on the pre-existing homogeneity and solidarity of the area--a factor which

would probably be absent from any predominantly urban or suburban area stricken by a similar disaster.

Table 9-28

"ACTIVE COMMUNITY ORIENTATION" IN THE POST-IMPACT PERIOD

	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
"Active Community Orientation"	39	58	55	33	66	44
Estimated Number of Interviews	18	66	31	24	30	128

LOSS INVOLVEMENT AND LATER POST-IMPACT SYMPTOMATIC REACTIONS

We noted above that greater loss involvement is associated in the immediate post-impact period with more intense affective reactions, particularly with those of the shock-stun variety. As indicated in Table 9-29, the relation between loss involvement and more persistent emotional reactions (those lasting beyond the immediate post-impact period) is less clear-cut.

Table 9-29

SUMMARY OF PHYSICAL AND PSYCHOLOGICAL DISTURBANCES IN THE LATER POST-IMPACT PERIOD, BY LOSS INVOLVEMENT

Type of Disturbance	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Any physiological or psychosomatic	78	74	71	54	44*	45
Any psychological	83	85	90	88	76	66
Any reactions of either kind	94	89	90	88	81	67
Reactions of Both kinds	67	70	71	54	39**	44
Estimated Number of Interviews	18	66	31	24	30	128

* But, breaking this category into those suffering personal loss and those with property loss only, the former have 26 percent, the latter 67 percent.

** Breaking this also by personal as against only property loss, we find 26 percent versus 56 percent.

The impact cases show differences by degree of loss involvement, only on the physiological or psychosomatic symptoms. While there is a general trend in the incidence of psychosomatic symptoms over the various loss involvement groups, the major distinction is between those with only "medium loss" (i.e., medium or low property loss and low personal loss) as against all the higher loss groups, the differences among the higher loss groups being small enough to be due to purely sampling variation. The non-impact cases, by contrast, differentiate between the gross loss categories—those with some loss versus those with little or none—only on psychological reactions, and there only by a very moderate difference. However, though on physical reactions, and on both physical and psychological reactions, the two main loss groups have almost exactly the same percentages, these conceal a distinction with the loss type between those with personal losses and those with only property

losses; the latter showing much higher percentages, making them more like the higher loss categories of the impact cases. This difference within the non-impact "some loss" group may be a function of degree of loss--i.e., the personal losses of non-impact cases involved mostly less intimate relatives and friends, while the property losses were of the respondent's own property.

Before we try to interpret these findings, let us look at some of the details of these symptomatic reactions.

Physiological or Psychosomatic Reactions

We examined the details of the physiological or psychosomatic symptoms to see if they showed any major variations from the overall pattern noted above, in which only the lowest-loss category was noticeably different from the others for the impact cases, while for the non-impact the gross loss categories did not differentiate. For specific types of disturbances of organic functioning there were some differences, but the pattern was not clear-cut. On a level intermediate between specific symptoms and the "global" category of all physiological and psychosomatic symptoms, the results (as shown in Table 9-30) are similar to the overall picture in Table 9-29.

Table 9-30

DETAILS OF PHYSICAL SYMPTOMS IN LATER POST-IMPACT, BY LOSS INVOLVEMENT

Type of Reaction	Percent of All Persons in Impact With				Percent of All Persons Not in Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Acute symptoms	11	23	19	17	2	3
Protracted symptoms	78	70	71	50	42*	43
Estimated Number of Interviews	18	66	31	24	30	128
Percent of those reporting any physical symptoms, whose symptoms lasted a week or longer:	50	49	45	31	50	20
Estimated Number of Interviews	14	49	22	13	13	57

* But, breaking this down into those with personal loss and those with property loss only: former, 26 percent; latter, 56 percent.

Psychological Disturbances

For psychological disturbances, there are variations by degree of loss involvement, as shown in Table 9-31.[1]

Table 9-31

DETAILS OF COGNITIVE AND AFFECTIVE REACTIONS IN LATER POST-IMPACT BY LOSS INVOLVEMENT

Type of Reaction	Percent of All Persons In Impact With				Percent of All Persons Not in Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Cognitive Disturbances						
Any	72	68	81	67	61	48
Inability to concentrate	28	38	48	29	46	16
Forgetfulness	22	21	26	8	2	1
Affective Disturbances						
Any	61	62	68	54	49	37
Shock, stun, daze	28	15	13	—	5	1
Nervousness, irritability, anxiety	39	62	48	46	31	31
Anxiety dreams, nightmares	28	18	23	4	20	7
Estimated Number of Interviews	18	66	31	24	30	128
Percent of those reporting psychological symptoms, whose symptoms lasted a week or more:	73	77	71	67	68	57
Estimated Number of Interviews	15	56	28	21	23	84

As these tables show, among the impact cases, both the protracted physical reactions and the affective reactions tend to be related generally to the degree of loss involvement, although the main distinction seems to be between

[1] Types of symptoms not mentioned in the table show only minor differences, according to degree of loss involvement.

the medium-loss cases on one hand, and the three higher-loss categories on the other. The same difference holds for the duration of the physical disturbances (but not for the duration of the psychological disturbances, where no differences of note appear between the different loss categories). Thus, consideration of affective disturbances separately from cognitive and related disturbances, modifies the picture presented in Table 9-29 about psychological disturbances in general, which showed no distinctions by loss involvement for the impact cases.

Consideration of the details of subtypes of affective and of cognitive disturbances modifies the picture further: those with high personal loss show the highest percentages of shock and stun reactions lasting into the later post-impact period, which follows the difference noted above on shock-stun reactions for the night of the storm itself. But for other types of affective disturbances (those corresponding to the "agitated states" of the immediate post-impact--e.g., "nervousness, irritability, anxiety"), the highest incidence is in the medium-personal-loss category. The high-property-loss-only cases have the highest proportions reporting any type of cognitive disturbances, and specifically the most prominent type--"inability to concentrate."

We may say, on the basis of these details, that the impact cases with higher levels of loss involvement, tend, in general, to show more symptoms than impact cases with only moderate loss; but there is substantial variation in the type of symptom which is most prominent, according to the kind as well as degree of loss in question: those with high personal losses (in deaths and injuries) being most likely to report physical symptoms and the shock-stun type of affective reactions; those with medium personal loss showing most often the other main kind of affective reaction (agitated states, irritability, anxiety, "nervousness"); and those with low personal losses but high property loss showing most often the cognitive disturbances, particularly those dealing with concentration on tasks.

The non-impact cases showed a different pattern: --while there was no difference in physical reactions between the two gross categories of loss, they were notably different in duration of these symptoms, half of those with some losses (who reported any symptoms) having reactions lasting a week or more, as against only a fifth of those among the little-or-no-loss group who had such symptoms. This difference in duration was much less pronounced (but appeared, in the same direction) for the psychological types of disturbances; but, in this area, there are noticeable and consistent differences in the specific types of reactions, between the two loss groups. Those with moderate losses show considerably more of the cognitive reactions, particularly inability to concentrate, than do those with slight or no losses; and somewhat more of the affective disturbances, particularly the anxiety dreams or nightmares. The percentages for non-impact groups are all lower than those for the impact cases.

Taking into consideration at this point the relationship of loss involvement to other variables which might be affecting the results, we note that the high-property-loss-only group has a higher proportion of older people (over 45 as against under 45) than any of the other impact loss groups. This

may be partially responsible for the higher proportions that this group shows of psychological disturbances in general, cognitive disturbances in general and in detail, and affective disturbances in general, since we would expect that older persons would have lesser powers of psychological recovery from the stresses of the disaster than younger ones.

The other major consideration with respect to related variables, is the sex ratio:—the high-personal-loss group, having a higher proportion of females than any of the other impact loss groups, may be expected to show more affective reactions in the later post-impact period and, in fact, they do show greater frequency for the shock-stun type of reaction (which is more a female than a male phenomenon, since loss of self-control or reductions of consciousness—e.g., fainting—is considerably more allowable for women than for men in this culture). While the differences in affective reaction found may be due in part to sex, the magnitudes involved indicate that loss involvement is also operative as a determining factor.

Morale

Morale, or the capacity to hold one's own under stress, is not something that respondents tell us about directly in the interviews. But we can get some rough indication of this elusive dimension by considering a number of expressions of attitudes and feelings in the later post-impact period—namely:

1. Positive, mixed, or negative attitudes toward the various informal and formal agencies involved in bringing aid to the disaster victims:

   a. Rescue, medical and mortuary activity

   b. Formal control agencies—State Police, National Guard, etc.

   c. Formal relief-rehabilitation agencies—Red Cross, Salvation Army, etc.

2. Positive, mixed or negative attitudes about the disruption of community services—electricity, water, gas, communications, etc.

3. Positive, mixed or negative attitudes toward outsiders coming into the stricken area.

4. Own subjective sense of deprivation, in absolute terms, or in comparison to others.

5. Positive mixed or negative attitudes toward rebuilding of destroyed homes.

Attitudes About Aid to the Disaster Victims

The Rescue, Medical and Mortuary Activity

All the cases were classified as to whether they made favorable or unfavorable comment on each of the following activities of the emergency phase: rescue activities, first-aid activities, mortuary activities, and hospital activities. We then noted which of these:—(1) made only favorable comments (and no unfavorable comments) about any of these four areas of aid; (2) which made only unfavorable comments (and no favorable comments) about any of these subjects, and (3) which made some favorable comments and some unfavorable comments. The three categories will be referred to here as positive, negative and mixed attitudes.

Examples of favorable comments are:

> Everybody was busy...helping pick up the dead and wounded... seemed like everybody realized what had happened and had just kind of settled down and gone to work. (Case R-334, p. 9)

> I do think that everything was done that could be done, and it was just wonderful how the people, nurses and doctors, all came from other towns and communities to help. (Case R-342, p. 7)

Examples of unfavorable comments are:

> That night before the storm, the people was crowded any place so bad, they was bothering the people that was getting the dead out; they were getting in the way. (Case R-110, p. 13)

> Someone was saying how terrible it seemed to view the bodies at the undertaker shop—the dead that were sent up there were more than they could care for, they didn't have room and they just had to stack them like they were logs. (Case R-342, p. 12)

We would expect that people suffering different degrees of loss involvement would express different degrees of favorable attitude about these emergency phase activities, specifically that persons with high loss involvement might show lower "morale" and negative attitudes toward the conduct of these activities.

The findings (as shown in Table 9-32) are generally in the expected direction, the more highly loss-involved showing more negative and mixed reactions to the emergency phase activities. The differences are moderate and show up, for the impact cases, primarily in the proportions expressing mixed attitudes. The medium-loss group also showed a somewhat lower percentage of positive comments only, but they had very few negative comments and no mixed, and generally very few comments on these problems. Among the non-impact cases, those with some losses are generally more negative about the emergency activities than those with little or no losses.

Table 9-32

ATTITUDES TOWARD RESCUE, MEDICAL AND MORTUARY ACTIVITIES BY LOSS INVOLVEMENT

Type of Comments	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Positive only	17	36	39	29	29	41
Mixed	22	6	6	—	17	15
Negative only	6	3	13	4	7	4
Express some attitude	45	47	58	33	53	60
Estimated Number of Interviews	18	66	31	24	30	128

The percentages expressing some attitude on these problems regardless of valency, gives a rough indication of the degree of concern people had about them, according to different levels of loss. Here surprisingly enough it was not those with the highest losses, but those with high property loss only that most often expressed some opinions on these topics. However, the differences between those with property loss and those with high or medium personal losses, are not great. Those of the impact cases with only moderate loss showed the least concern as expressed in this index. The two loss categories of non-impact cases were about equally "vocal" in their comments on the emergency activities.

Attitude Toward Formal Control Agencies

Expressions of attitude toward formal control agencies (the National Guard, the State Police, other police, and federal, state, county and local governmental agencies and officers) are notably scarcer than expressions of attitude toward emergency activities or relief and rehabilitation.

Again, we have classified the expressions of opinion as exclusively positive, mixed and exclusively negative.

Examples of positive attitudes are:

> The National Guard and cops did a good job of guarding.... (Case R-238, p. 9)

> You're just kinda glad to see them because you know they're there to assist you. (Case R-154, p. 15)

Examples of mixed attitudes are:

> I think one thing we might not have had enough centralized authority during the first two or three days and sometimes we'd have a cross-up with orders and it was a little confusing. But overall I think it was a good job. (Case R-150, p. 17)

Examples of negative attitudes are:

> Lots of people that would have gone in and worked and helped everyway they could, wasn't let go in...they told them they couldn't without going and getting a permit. They said, 'Well, if they won't want me to work any more than that, well I'll just go home'...didn't want to go through all the trouble of going somewhere and explaining and telling them what they was going to do and all. (Case R-246, p. 38-39)

We would expect that the higher the loss involvement, the greater the percent expressing some concern about these agencies, on the theory that those harder hit would feel more need of reassurance about protection and order from the various formal authorities.

As indicated in Table 9-33, this hypothesis is supported by the relatively high percentage of high-personal-loss cases expressing some attitude. Differences among the other loss involvement groups (both the impact groups and the non-impact groups) are negligible.

Table 9-33

ATTITUDES TOWARD FORMAL CONTROL AGENCIES, BY LOSS INVOLVEMENT

Type of Comment	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Positive only	39	32	26	21	20	34
Mixed	11	3	6	8	2	1
Negative only	—	3	3	4	10	2
Express some attitude	50	38	35	33	32	37
Estimated Number of Interviews	18	66	31	24	30	128

With respect to content of the expressed attitudes, trends are opposite for the impact and non-impact cases. For the impact cases, the higher the loss involvement, the more positive is the attitude toward the formal control agencies. For the non-impact cases, those with some losses are more negative toward the formal control agencies than those with little or no loss. Presumably different dynamics are at work in the non-impact cases from those of the impact cases, i.e., that the kinds of expressions of positive attitude made by the non-impact people are of a psychologically different order from those made by people who were directly hit by the storm.

Attitudes Toward Formal Relief Agencies

Here we consider attitudes expressed toward the Red Cross, the Salvation Army, the various local and outside church and other formal relief and rehabilitation agencies. Since the problems of relief and rehabilitation were much more open and obvious for the disaster victims than those of control and authority. It is to be expected that we would get much greater expression of opinion on these agencies, than on the police and other authority agencies. To the extent that the work of the relief agencies provided not only material aid but also psychological reassurance to those suffering great stress, we should expect that the degree of extremity of loss involvement would be reflected in the extent to which respondents in the different loss groups express some evaluative concern with the organizational relief work. It is practically impossible, of course, to tell whether similar evaluative statements do in fact have the same kind of psychological meaning for different respondents (something we would have to assume in order reasonably to consider attitudes of this sort as a morale index). We would expect generally, that, other things being equal, the higher the loss involvement, the greater the need for reassurance from these types of "authorities;" and that sensitivity to negative aspects of the relief work would be greater in those whose loss involvement is high but particularly where the loss focused on property destruction, homelessness and similar effects of the storm rather than on loss of life and injuries (where the formal relief agencies would, of necessity, be able to offer only psychological support).

Again we have made a rough classification of the evaluative comments into positive only, mixed, and negative only (recognizing, of course, that this greatly oversimplifies the variety and complexity of the actual statements made). Examples of such comments are:

Examples of positive comments:

> The Salvation Army did a wonderful work. Of course they are smaller and can't do as much in as big a way as the Red Cross...but they did do a wonderful work. (Case R-342, p. 7)

> Well, it seemed like everybody was here pretty quick... the Salvation Army.... (Case R-118, p. 21)

> We had lots of stuff [local relief group]...did our best... we were going strong when the Red Cross moved into Bald Knob. (Case R-334, p. 18)

Examples of negative comments:

> The Red Cross ain't worth fifteen cents for my money. They don't do nothing for you. You go up there and tell them your life history, sign your name to a bunch of lies, they might do something for you. (Case R-346, p. 20)

> They've been there [the Red Cross] and said they was going to do something...but they've never been here... never brought nothing yet...so they hain't done nothing. (Case R-298, p. 13)

Table 9-34 presents the findings on these attitudes as related to loss involvement:

Table 9-34

ATTITUDES TOWARD FORMAL RELIEF AGENCIES, BY LOSS INVOLVEMENT

Type of Comment	Percent of All Persons in Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
Positive only	50	45	39	25	27	26
Mixed	11	12	13	25	2	12
Negative only	22	21	29	38	49	20
Express some attitude	83	78	81	88	78	58
Estimated Number of Interviews	18	66	31	24	30	128

With respect to frequency of comment there is little difference among the loss involvement groups, except for the relatively low frequency for the non-impact cases with low loss. Since the proportion of respondents commenting on formal relief agency activities is high, the general picture is consistent with the hypothesis suggested above.

With respect to the content of the expressed attitudes on relief agencies the pattern is similar to that for formal control agencies:—the higher the loss involvement among the impact cases, the more positive the attitude toward the agencies concerned; and, for the non-impact cases,

those with some losses are more negative than those with little or no loss.

We would suggest, again, that different mechanisms are at work in the impact as against the non-impact cases. The "some-loss" cases in the non-impact areas might well be more acutely aware of their material and related needs by comparing themselves to those in their own areas who were not hit at all (the vast majority of the non-impact cases), which would account for their much greater negativity toward relief agencies, not only greater than the other non-impact cases, but greater than for any of the impact groups. There may also be "external" basis for the greater negativity of the some-loss non-impact group, in the fact that relief agencies probably did tend to give this group lesser attention than the (impact) cases whose needs were more acute and severe. Among the impact cases, by contrast, those with the more severe losses, i.e., personal losses, were probably less likely to focus on the material needs and comforts that the relief agencies tried to handle, than were those whose losses were mainly in property and homelessness; and in turn, the work of the relief agencies served for them more of the psychological function of reassurance rather than that of material aid. This, of course, is speculation, but it might be examined further by a detailed examination of the interviews that present these constellations of attitudes in more striking form.

Attitudes about Disruptions of Community Services

Applying the same method of classification to attitudes about the disruption of various community services—gas, electric, water, communications, transportation, business services and insurance companies—we attempt to get some measure of the extent to which concern over these derivative effects of the storm is related to degree of loss involvement.

For the impact cases, the number of respondents expressing such attitudes is very small in all instances (only about a fourth to a third of the cases in a particular loss category expressing any evaluative opinion at all) and the differences in percentages of positive, mixed and negative reactions are too small and unpatterned to warrant presentation in a table. The non-impact cases do exhibit the usual differences by degree of loss—those with some loss being more negative than those with no losses.

Table 9-35

ATTITUDES ABOUT DISRUPTION OF COMMUNITY SERVICES, BY LOSS INVOLVEMENT: NON-IMPACT CASES

Type of Comment	Percent of All Persons Not In Impact With	
	Some Loss	Low Loss
Positive only	29	29
Mixed	—	1
Negative only	12	3
Some opinion	41	33
Estimated Number of Interviews	30	128

Summary of Attitudes Toward Various Post-Impact Problems According to Loss Involvement

With respect to attitudes toward rescue, medical and mortuary activity, control agencies, formal relief agencies, and disruption of community services, non-impact cases show a consistent difference—the loss-involved being consistently more negative in their evaluations than those with little or no losses. The impact cases, on the other hand, show a different pattern. In attitudes toward control agencies and toward formal relief agencies, there is a positive correlation between degree of loss involvement and degree of positive attitudes toward the agencies concerned. However, on the matters dealing particularly with the fate of the injured and the dead, those with high personal loss are the most negative of the impact cases. Attitudes toward disruption of community services show no pattern according to loss, for the impact cases—which suggests that these problems were too remotely derivative to be of that much concern for those who had the more intense loss experiences.

Attitude Toward Outsiders

Examination of the tabulations on positive, ambivalent and negative attitudes toward outsiders, by degrees of loss involvement, shows that there is no clearcut pattern of any kind relating attitudes to loss, for either the impact or the non-impact cases.

Sense of Deprivation

Probably the most nearly direct indication of morale is the respondent's own subjective sense of how much he was deprived by the whole experience, referring to any kind of stress, loss or derivative inconveniences and hardships. If people felt their situation the way it objectively was, in terms of degree of property and personal loss, then the distribution of "sense of deprivation" would be in line with the actual degree of loss, i.e., those with highest losses would feel most deprived, etc.

In the following table summarizing our findings on this subject, "high sense of deprivation" means the respondent feels his deprivations were great, or relatively great, i.e., as bad as it could have been for him. "Medium sense of deprivation" means feeling his deprivations were moderate or slight, or that there was some deprivation but not as much as there could have been. "Low sense of deprivation" refers to feeling that he had no deprivations at all, or that he suffered none but some were objectively possible so that he feels he got off lucky. We also tabulated whether the respondent felt his deprivations were greater than, equal to, or less than those of other persons, and who the others are with whom he compares himself. Scarcely any of the respondents reported themselves as more deprived, or even as equally deprived as others. Therefore, in the table that follows, we present only the percentages who reported themselves as less deprived or less hard hit than others. Very few gave any specification of who the others are with whom they are comparing themselves (other than defining them in terms of greater deprivation, which is merely circular—i.e., the respondent says he feels less deprived than others who were more deprived).

Examples of the kinds of statements that have been classified under these different categories, follow:

"Medium sense of deprivation:"

> I am just thankful that we're all here and none of us hurt more than what we were. (Case B-138, p. 10)

> We were one of the fortunate people, of course, that we were not injured and our personal damage wasn't too heavy... (Case B-150, p. 15)

"Low sense of deprivation:"

> It makes you feel awfully lucky yourself that you wasn't hurt like that. (Case B-118, p. 15)

Table 9-36

SENSE OF DEPRIVATION, BY LOSS INVOLVEMENT

Sense of Deprivation	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With	
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Loss	Low Loss
High	28	12	9	12	5	—
Medium	55	66	71	63	22	6
Low	—	17	6	4	64	77
Less deprived than others	28	56	42	38	53	28
Estimated Number of Interviews	18	66	31	24	30	128

As shown in Table 9-36, the non-impact cases distribute according to what would be expected from their objective situation, on the high-medium-low categories of subjective sense of deprivation: i.e., those who actually suffered losses were more likely than those who did not, to report feeling high or medium deprivation, and less likely to report feeling low deprivation. The only unusual aspect of the non-impact cases is the high proportion of the "some-loss" group who report feeling "less deprived than others" as compared to the low percentage so reporting for the low-loss group. This is probably simply that those low-loss non-impact people, being outside the force of the storm, did not think of comparing themselves in deprivations with those who were right in the impact of the tornado. But those with some losses included many who were on the periphery of the tornado, and might well compare themselves with the others (the impact cases) who were more squarely in the path of the storm.

The impact cases do not distribute entirely in accordance with the objective losses suffered. The results suggest that the "frame of reference" is different for the different involvement groups. While a detailed analysis has not been made, there is some reason to believe that persons with medium personal loss tended to compare their situation with that of the impact victims suffering the most extreme loss (i.e., people in the high personal loss category). From this standpoint, the medium personal loss cases would see themselves as less deprived and, in absolute terms, would tend to report their deprivations as "medium" or "low." The impact cases who suffered only low personal loss and moderate or low property damage, show some tendency to compare their own situation with that of persons (not in the impact area) who suffered no loss. Those who made this type of comparison would, of course, feel more deprived than others and would tend to report their deprivations as "medium" or "high."

While the results are very tentative (and more definitive research and analysis would certainly be desirable), the picture on deprivations suggests that improvement of "morale" in disaster-stricken populations might best be accomplished by directing attention at those in more deprived circumstances. Conversely, morale of an enemy population might be effectively undermined by directing the attention of the victims to those who did not suffer serious deprivation. These techniques may well be effective even for persons who have actually suffered extreme hardships--even in the high personal loss group, 28 percent felt that their deprivations were less than those of others.

Decision to Rebuild

Another rather direct indication of morale (applicable only to those whose owned property was destroyed) is whether or not the subject intends to rebuild where he was (or nearby) or has already started rebuilding. Taking only impact cases, and comparing those who had only high property loss, with those who had both high property and high death or injury loss,[1] we find very substantial differences (see Table 9-37).

Table 9-37

DECISION TO REBUILD, BY LOSS INVOLVEMENT

Attitude About Rebuilding	Percent of All Persons In Impact With: High Loss Both Personal and Property	High Loss on Property Only
Will rebuild or has already started	31	61
Undecided or ambivalent	62	17
Will not rebuild	—	6
No indication of intentions	7	16
Number of Interviews	13	75

In terms of intention to rebuild, those who lost kin or had serious injuries in addition to property loss were more demoralized in this particular way than those whose losses were high on property only.

[1] Because it would make sense to make the comparisons only among cases who had their own houses destroyed, we here used a different breakdown of the impact area cases: the first group consists of those of the "high-personal-loss" category who also had high property loss; the second group constitutes the "high-property-loss-only" category plus those of the medium-personal-loss group who also had high property loss.

OTHER RELATED POST-IMPACT ATTITUDES

Naturalistic Versus Supernaturalistic Explanations

We were interested in knowing whether people differed particularly according to degree of loss, in the extent to which they placed a supernaturalistic (or religious) interpretation on the storm, as against a purely naturalistic interpretation. Respondents were asked what they thought had caused the storm, why it had hit where it did, did so much damage, or why it hit some people so hard and others so much less so. "Supernaturalistic" explanations here include any references to "God's will," "act of God," "God punishing the wicked," etc., to any of these questions. It included cases where the respondent also gave naturalistic interpretations to any aspect of the question. By contrast the cases we classify as "naturalistic" here are those respondents who interpreted only in naturalistic terms, i.e., made references to scientific, or at least partly scientific, explanations.

Examples are:

Supernaturalistic interpretations:

> I really believe that He [the Lord] has shown the people what He can do and according to the Bible, we ain't seen nothing yet. This is just a starting. It's getting closer to the last day. (Case B-110, p. 10)

Naturalistic explanations:

> At times the wind is higher at one circle than...at the other; travels in a whirl, it might be high when it passed over this place. (Case B-334, p. 30)

> Didn't do anything to his house—it was those trees [that protected it]. (Case B-238, p. 13)

We would expect that persons suffering different degrees of loss as a result of the storm, will differ in the extent to which they will resort to supernaturalistic references in trying to understand not so much the storm itself, as the differential impact of it upon different members of the stricken communities. More specifically we would expect that those who lost the lives of loved ones or had severe injuries to themselves or close kin, might feel more need to relate such loss to a "power above" or at least to give "explanations" that combine both naturalistic and supernaturalistic elements in their explanations.

Table 9-38 shows that the more supernaturalistic attitudes are clearly associated with higher loss involvement, in both impact and non-impact cases, particularly with personal losses. This is in agreement with our hypotheses.

Table 9-38

NATURALISTIC VERSUS SUPERNATURALISTIC INTERPRETATIONS OF THE STORM BY LOSS INVOLVEMENT

Interpretation	Percent of All Persons In Impact With				Percent of All Persons Not In Impact With		
	High Personal Loss	Medium Personal Loss	High Property Loss Only	Medium Loss	Some Personal Loss	Some Property Loss	Low Loss
Supernaturalistic	44	30	26	21	44	34	34
Naturalistic only	39	43	38	55	30	39	29
Estimated Number of Interviews	18	66	31	24	17	13	128

Changes in Values

Another factor which might be expected to correlate with different degrees of loss involvement is different degrees of change in values. In the change in values category was included any statement referring to strengthening or weakening of religious sentiments, or to return to religious values from which the respondent feels he has strayed, or to feeling less materialistic, attaching more importance to community cooperation, mutual aid, or a more fatalistic or more confirmedly fatalistic outlook on life.

We found, interestingly enough, that although the disaster victims showed differential degrees of supernaturalistic references in "explaining" the storm according to difference in lossinvolvement, they showed practically no differences at all in the percentages reporting any types of changes in values, (including feeling more religious than before). Roughly one-fifth to one-fourth of each loss category reported such "religious changes," and a slightly smaller proportion reported other types of changes, the differences among the loss categories turning out to be entirely trivial. Further breakdown of the cases by sex showed only that females generally reported more such changes than males, but with no distinction by degree of loss involvement.

Changes Perceived in Others

A related indication is the extent to which the respondent considers other people to have changed since the storm. The types of statements that occurred here were that other people were more friendly, more cooperative, kinder, more generous; or more religious, better Christians, go to church

more, now repent their sins, etc.; or that they are more subdued, restrained, etc., that they are holding up well under stress, or better than the subject expected; or vaguer expressions that people are "better for it." We also had classifications for "negative" changes but very few such statements occurred in the interviews, and practically all of these were of the sorts "People have not changed but they should have--they're just as wicked as before," etc.

We compared the people in different loss categories on percent reporting others changed in these various ways. In the details, the responses either occur in too small frequencies to make comparisons, or show no clear-cut pattern.

"Worst Aspects" of the Experience

We also examined the different loss groups to see if they showed any strikingly different percentages reporting specific aspects as the "worst aspects" of the whole disaster experience. While the results showed many differences in details between the loss categories, none of these differences was substantial, and no definite pattern emerged--aside from the most obvious things such as that those with high personal losses were more likely than those with property losses only, to note "deaths or injuries to kin or intimates" as the worst feature of the experience. Since the results on these tabulations are so inconclusive, we do not present them in table form here.

SUMMARY ON LOSS INVOLVEMENT AS A DETERMINANT OF DISASTER REACTIONS

We shall now attempt to summarize briefly the relevance of loss involvement in the post-impact behavior, feelings and attitudes of the impact area and peripheral and adjacent populations.

In the immediate post-impact period, those of the impact population with the highest level of loss—i.e., high personal losses—showed the highest percentages of shock-stun reactions, and emotional states, in general; while those with only medium personal loss had the highest proportion reporting states of agitation without loss of self-control. Non-impact cases showed no differences in affective reactions by loss involvement. In orientation to the general community in the immediate post-impact period (i.e., the night of the storm), it was those in the two middle levels of loss, for the impact cases, who most showed the highest percentages, i.e., those with either moderate personal loss or high property loss only; and for the non-impact cases, those with some losses far outranked those with little or no loss, in such community orientation.

Looking at specific types of post-impact aid to the disaster victims, we find that the impact area population differentiates according to loss involvement, on rescue activity, mortuary activity, and informal relief aid to own kin or intimates: in each of these activities, those with medium property loss only, showed lesser participation than any of the higher-loss categories (but the latter do not differentiate among themselves). Informal aid

rendered to individuals other than kin or intimates, shows the lowest percentage in those with the highest loss, i.e., high personal loss, the other three loss groups not differentiating. Taking informal aid toward <u>any</u> individual objects, the two middle levels of loss have higher percentages than either the higher or the lower level.

The same is true if we take as an index of "active community orientation in the whole post-impact period," participation in direct rescue, medical work, informal aid to non-intimates, or formal relief volunteer work. Again the two middle levels of loss involvement are associated with more active community orientation. Thus for the impact cases, active orientation toward helping the disaster victims (whether individually or by collective efforts) tends generally to be associated with degree of loss involvement, but those with the most severe losses (bereavement or severe injuries) participate less in some specific activities than those with the moderate losses. In general, our original hypothesis that help for the disaster victims would come most from those rather hard hit but not severely enough to incapacitate them either physically or emotionally, tends to be confirmed.

For the non-impact cases, distribution of different types of participation, as related to loss, varies by the type of aid: in rescue and informal aid to individuals (either kin or intimates or others), those with some losses outrank those with little or none; but practically all the volunteer work in hospitals or medical centers was done by low-loss non-impact people, and volunteer work with formal relief agencies was primarily a non-impact activity not distinguishing different levels of loss. Overall "active community orientation" was definitely associated with degree of loss involvement, for the non-impact cases, those with "some loss" here, corresponding generally to those with moderate levels of loss among the impact cases.

In later post-impact symptomatic reactions, physiological or psychosomatic, affective and cognitive, we find that for the impact cases both the appearance and duration of physical symptoms is associated with degree of loss; affective reactions are roughly associated, but vary in detail, the high-personal-loss group again showing highest percentages of shock-stun reactions, while the medium-personal-loss are again highest on agitated and anxiety states, and the high-property-loss <u>only</u>, highest on cognitive disturbances. The non-impact cases did not vary by loss in incidence of physical symptoms, but did in <u>duration</u> of such reactions, some-loss cases having more lasting reactions than low-loss cases. On psychological disturbances, they do not distinguish on duration, but do differentiate on incidence of such symptoms generally, and specifically on incidence of agitated states, higher incidence being associated with higher loss involvement.

In attitudes toward the various post-impact activities designed to aid the disaster victims, we found that higher loss involvement tended to be associated with more positive attitudes toward control agencies, toward formal relief agencies, and, with a major exception, with more positive attitudes toward rescue, medical and mortuary activities. On the latter activities, those with high-personal-loss were the most negative of the impact cases. By contrast, in the non-impact cases, higher loss was associated with more negative attitudes toward all of these activities, and also toward disruption of community services.

Regarding related attitudes bearing on the question of morale, we found that those with only medium personal loss were most likely to understate their actual deprivations, in presenting their subjective view of them, either in absolute terms or in comparison with others. Also those with higher loss (in this case high personal loss as against high property loss only, among those who lost their homes) reported themselves as much less prepared to rebuild their homes.

Higher loss was also associated with greater frequency of supernaturalistic interpretations of the storm (as against purely naturalistic interpretations).

Summing up, a pattern emerges in which it is the relative degree of loss that seems most important in determining differences in post-impact actions, affect and attitudes: those with next-to-the-worst losses, i.e., those with medium personal loss (usually with high or medium property loss as well), and those with high property loss only, tended to have next-to-the-most-extreme emotional and related reactions both immediately after the storm and later, and also were those most actively community-oriented when considering a combination of rescue, mortuary, informal and formal relief work. They also had the most positive attitudes toward the rescue, medical and mortuary activities, and next-to-most positive attitudes toward control and formal relief agencies. They also show higher morale in reporting greater certainty of planning to rebuild their destroyed homes, and in a greater tendency to understate their objective losses. They are less supernaturalistic in their interpretation of the storm than those with high personal losses (but also more so than those with only medium property loss).

The most problematic group, as might well be expected, are those with high personal losses: though showing the highest percentages of what were probably the most incapacitating emotional reactions (the shock-stun reactions) both immediately after the storm and continuing into the post-impact period, and also showing a greater proportion of physiological and psychosomatic reactions, they nevertheless showed no less participation than the other higher loss categories in rescue work, mortuary activity, and informal relief to kin or intimates, and were only moderately less involved in "active community orientation" generally. They are the most negative in attitude about the rescue, medical and mortuary work, but most positive toward the control and formal relief agencies. The latter two seem to have reassured these persons that competent authorities were concerned about their needs.

For the non-impact cases, the constellation of activities, attitudes and symptoms seems to indicate that the people in these areas who suffered some losses seemed to be comparing themselves more predominantly with others who suffered less, i.e., neighbors in their own area, rather than with others who suffered more (i.e., the impact cases). They tend to have more symptomatic reactions generally, to be definitely more negative toward all the activities associated with aid to the disaster victims, and to take a more supernaturalistic attitude toward the storm and its effects.

CHAPTER X SUMMARY OF FINDINGS OF THE ARKANSAS TORNADO STUDY[1]

On March 21, 1952, a series of devastating tornadoes struck nine southern and south-central states, killing 231 persons and injuring 1,829 others. Over 1,000 homes were destroyed and over 3,000 damaged, and the dollar value of the property destroyed and damaged ran into multimillions. The state of Arkansas was hardest hit and, within that state, White County suffered the largest number of casualties and the greatest amount of property destruction. White County, in fact, sustained the most concentrated damage of any area throughout the entire nine-state tornado region. A total of 46 persons was killed, and 615 persons were injured. Over 600 buildings were destroyed and over 800 were damaged. The estimated damage to property in the County was over $3,500,000.

The National Opinion Research Center team conducted a large-scale social-psychological study of the tornado in White County, interviewing a systematic sample of the population in four townships in the center of the County. These four townships were selected because most of the County's deaths, injuries, and property destruction was centered in them. The townships included five communities and surrounding rural areas and the population concerned had a wide range of involvement in the disaster. The town of Judsonia, with a population of 1,122, was almost completely destroyed; 35 persons were killed, nearly 400 were injured, and the community facilities were completely disrupted. The community of Bald Knob, having a population of 2,000, was heavily hit in certain sections, but relatively untouched in others; 11 persons were killed and approximately 100 were injured. The small mill town of Doniphan (population about 300), had heavy property damage, a considerable number of persons injured, but no deaths. The nearby town of Kensett, composed of about 800 persons, had heavy winds, but no serious damage and no deaths or injuries. Finally, the town of Searcy, with over 6,000 residents, narrowly escaped the path of the tornado and had no major damage, deaths or injuries. The population of Searcy was highly involved in the post-impact phase of the disaster, since the town served as the focal point for the organized medical and relief operations in the County.

A total of 342 interviews with residents of these five communities and their surrounding rural areas was completed. In addition to this sample of the general population, interviews were conducted with 81 persons who played key roles in the various rescue, medical, mortuary, control, relief, and information operations during the post-impact phase of the disaster. All of the interviews were tape-recorded and later transcribed into typewritten protocols.

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[1] The present chapter is limited to a summary of the descriptive and analytical findings of the Arkansas study. For a more general comparative summary of the findings from all our field studies, the reader should consult Chapter XI.

Systematic codes for the general sample cases were constructed, each case was subjected to detailed examination and coding, and the codes were transferred to IBM cards for statistical analysis. In the final tabulations, 297 cases (139 from impact areas and 158 from non-impact areas) were used. The sample cases were selected and tabulated in such manner as to permit valid generalization to the entire population involved. The detailed findings of the analysis have been presented in previous chapters. In the present chapter we shall briefly summarize both the descriptive and the analytic findings of the Arkansas study.

THE DESCRIPTIVE FINDINGS

The Pre-Impact Situation

1. Characteristics of the Population Studied: The population in the sampled area is composed predominantly of small town and rural dwellers who are native White, Protestant, and of old generation settlement. Unlike many Southern areas, Negroes constitute a very small proportion of the total popul tion (less than seven percent).

The economic base of the area is predominantly agricultural, although small-scale manufacturing is on the increase. Most of the labor force is engaged in small-scale manufacturing or in the service industries, with a substantial proportion of full-time farmers and farm laborers. Many of the persons who work in the small manufacturing industries (particularly persons living in Judsonia and Kensett) commute to their jobs in Searcy or Bald Knob and also carry on small-scale farming in their spare time.

The economic status of the population, as measured by annual money income, is relatively low, although it does not differ significantly from the state of Arkansas as a whole. The education level of the population is a year below the national average of about nine years of schooling. The population has a strong fundamentalist religious orientation and a high rate of church attendance.

Most of the families live in small, detached single family dwellings and most of them own their own homes. The average family size is only slightly over the national median of 3.1 members per household. Compared with the United States, as a whole, the area is less urbanized and industrialized and contains a more culturally homogeneous population.

2. Previous Disaster Experience: The general area hit by the tornadoes is frequently referred to as "tornado alley," because of the frequency with which tornadoes strike. Despite this depiction, the particular area studied had not had a tornado in recent years and less than a third of the population had ever directly experienced the impact of a tornado. Most persons had no previous tornado experience of any type or had only indirect experience.

The majority of the population had been sufficiently exposed to tornado lore or experience to have some prior knowledge of the cues identifying tornadoes, their destructive potentialities, and the appropriate kinds of protective action to be taken in the event of a tornado. However, only a small fraction of the population possessed storm cellars or basements which would provide adequate protection. Moreover, measured against a standard of the best available knowledge concerning safety measures to take in tornadoes, it would probably be accurate to say that the majority of residents in the area had a rather vague and inadequate knowledge of appropriate precautionary and protective measures.

3. The Situation Immediately Prior to Impact: The tornado struck the sampled area between 5:30 and 5:45 P.M. At this time most persons were at home with their families, preparing for or eating dinner, relaxing from the day's work, or performing household or farm chores. Three-fourths of the impact households were complete and intact at the time of impact. Virtually all the absent household members were in or near their home communities at the time of impact. In many cases, a radius of only a few blocks separated the missing members.

4. Forewarning: Although a forecast of severe storms or tornadoes for southern Arkansas had been issued by the Little Rock Weather Bureau shortly after noon on March 21, no specific forecast of tornadoes for central or northern Arkansas was issued. The first impact hit the small town of Dierks, Arkansas, at approximately 3:00 P.M., but less than five percent of the sampled population had heard the forecasts or the radio reports concerning other communities being struck. By late afternoon, most persons had noted the dark clouds, thunder, and high winds of an approaching storm. In most cases, however, these cues were not sufficient to lead the person to anticipate a tornado. The vast majority of the population assimilated these cues to a "usual bad storm" definition—not a storm of disastrous proportions. In many cases, this "normal" interpretation continued until the moment of impact—about one-third of the population had no warning at all, another one-third had less than a minute, and the remaining one-third had over one minute's warning. Very few had correctly defined the event as a tornado (or a very seriously threatening storm) as early as five minutes before impact. One of the features which prevented the earlier identification of the event as a tornado was the extreme darkness which preceded impact. This darkness tended to obscure the most characteristic cue associated with tornadoes—the "funnel" or vortex cloud. Only one percent of the persons in the sampled area reported that they saw the funnel. In general, there was no realization of danger until demolition began, i.e., the houses began coming apart, windows started breaking, or heavy objects were seen flying through the air.

5. Pre-Impact Actions: The most common action in the immediate pre-impact period was investigatory action. Persons observed the weather cues and attempted to assess the severity of the storm. There was frequently a considerable amount of social interaction centering around the meaning of cues, and in general, those who interacted with others tended to arrive at a definition of threat more quickly than those who did not. A considerable proportion of the population began to take precautionary measures—e.g., closing

windows and doors, dousing stoves and blowing out candles, etc. Some parents began to round up children or otherwise see that they would not be too greatly exposed to any danger. Self-control was generally maintained. No one broke into panic flight, became markedly hysterical, or showed any great incapability to act in the situation. Almost all activity was oriented towards persons (self or others); few took any action towards property. In general, the greater the length of forewarning, the more precautionary-protective actions were taken. Just prior to the impact of the tornado, people began to sense something was amiss and began looking around and discussing the situation with those around them. The result was that many of them were in the middle of investigatory-precautionary activity when the tornado hit them.

The Impact Situation

1. The Definition of the Situation: At impact, almost all individuals in the area hit by the tornado changed their definition of the event from an unusually bad storm to a storm of disastrous proportions. Not all immediately labelled it as a tornado, but they generally thought of it as something threatening death or injury. In the areas not hit by the tornado, individuals continued to define the weather disturbances as a bad storm, with only a very few persons suspecting that more might be involved.

2. Objects and Nature of Threat: People felt themselves and those with them to be in considerable danger. A chief concern seemed to be that the house in which they were located would collapse on them; less frequently, that the structure itself would fly away. Another main source of concern was injury by flying debris (especially broken glass). Very few individuals were concerned about property damage or losses.

3. Perception of Storm Effects: Almost everyone in the areas hit by the tornado had a "near miss" experience in the sense that they perceived that the structure in which they were located was disintegrating, or they felt the house shake and vibrate. Some individuals were knocked down by the wind or the house movements; others got hit by flying debris. In a few instances, individuals were completely blown out of their houses.

Relatively few people reported being trapped in the debris. The low incidence of entrapment in debris is largely attributable to the fact that a tornado tends to disperse debris over a wide area rather than to accumulate it in piles in a few places.

4. Affective Reactions: People got frightened, in most cases, quite badly, but almost everyone maintained self-control. Few individuals were so dazed or stunned as not to be able to act.

5. Perception of the Behavior of Others: Most other individuals present in the same situation were seen as acting in a relatively self-controlled manner--frequently, as attempting to do something to protect themselves. Men were seen as being more active than women, and as maintaining a somewhat greater degree of self-control. Most of the few reported

cases of loss of self-control and dependency upon others for help were on the part of children.

6. Impact Actions: The first action taken during impact was generally of a protective or precautionary nature. Usually it was not of a complex nature but rather elementary--involving such activities as holding the door shut, dropping to the floor, getting under the bed, etc. In many instances such behavior was taken in common with other persons present in the same situation.

The initial action taken in impact tended to be continued as the predominant action during the rest of the period. There was no hysterical breakdown, no panic flight, and no affective immobility. Nearly all persons tried to do something to protect themselves and individuals with small children or elderly persons around them attempted to protect them. After taking elementary precautionary-protective actions, a considerable number of persons started to pray. Except in those instances where sections of the house started to cave in or began to blow away, there was little moving around.

As far as can be ascertained, most of the actions taken appear to have been adaptive to the particular situation with which each individual found himself faced. The low rate of deaths and serious injuries would seem to support this.

The Immediate Post-Impact Situation

1. The Assessment Process: There was an initial tendency to localize the disaster as having occurred only in one's own neighborhood; slightly later, in one's own town or area. However, as sightseers and persons looking for relatives came into the stricken areas, individuals in the impact areas gradually discovered that other towns and localities had been hit. This underestimation of the severity and extensity of the tornado was even more true of persons outside the stricken areas. In general, they did not learn that a tornado had hit anywhere in the vicinity until several hours later.

2. Immediate Post-Impact Activity: Most individuals who had experienced the tornado were quite disturbed emotionally after it was all over. However, they maintained overt self-control and attempted to do what they thought was called for by the situation. Almost no individuals were so highly disturbed that they needed someone to take care of them.

Immediately after the tornado had passed, individuals started to extricate themselves from the debris, looked around at what damage had been done and talked over the situation with the neighbors. As it was observed or learned how extensive the tornado was, those individuals with relatives nearby began to hunt for them. Others, after they had assured themselves of the safety of their families, turned to help the community in general. Rescue work was rather rapidly (although somewhat confusedly) initiated wherever it was needed by those people who happened to be in the vicinity.

When seriously injured were found, they were sent off for medical attention in Searcy by the best available means. For about six hours, individuals in the impact areas worked at rescuing and giving emergency relief to one another. Men were considerably more active than women in these activities.

Family-oriented activity took precedence over other behavior. As long as individuals were searching for, or had to take care of, their own families, they gave little attention to other activities. Almost no one reported any interest in property at this period.

Individuals from outside the impact areas (because they learned of the tornado rather belatedly) did not, in general, undertake any storm-oriented activity until two to three hours after impact. When they did, it took the form of searching for relatives, sightseeing in the disaster area, or helping out with the medical activities at Searcy. As in the case of individuals who underwent impact, those non-impact persons who searched for relatives usually gave this search priority over other activity. Partly because of this searching for relatives, partly because comparatively few got into the impact areas, and partly because some did not hear of the tornado until the following day, very few individuals from outside the impact areas took part in rescue work.

After midnight most storm-oriented activities were discontinued. Individuals who had undergone impact had, by that time, found temporary living quarters and went to bed or attempted to rest. Most of the people from outside the impact areas who had come into the stricken towns returned home. Even formal organizations (who by this time were operating throughout the area) sharply curtailed their activities (except for those groups that had taken over rescue work).

3. Search Activity: Searching for relatives was an individual or family activity. Organizations helped very little in locating people, partly because it took them some time to set up their facilities and partly because there was some confusion when victims were brought in for aid (e.g., failure to register injured who were brought into the hospitals). Despite such confusion, almost all persons located the individuals sought by midnight. Most people initially confined their searching to their own immediate vicinity, but as the extent of the tornado was realized, the area of search was extended. This persistent and very strongly goal-oriented searching activity appears to be a function of the closely knit and extensive kinship system prevalent in this semi-rural area of Arkansas.

4. Rescue Activity: Early rescue activities were undertaken by the local people, either individually or in small groups. These activities were marked by some confusion and were quite unsystematic, because they were initiated with the idea of digging out, as quickly as possible, people who were known to be trapped at particular locations. More systematic and extensive work was only undertaken by formal organizations like the National Guard, which moved in around midnight and took over most subsequent rescue work. The sight of the dead and injured proved traumatic and disturbing to a considerable

proportion of the earlier rescue workers, although it does not seem to have limited their efforts.

5. Derivative Threats: A recurrence of the tornado that night was feared by a number of the individuals in the impact area and a few of them went to storm cellars or took some other precautionary action. Other conditions individuals perceived as threatening that night were danger of electrocution from loose and fallen power lines, exposure to wind and rain, and the danger of traffic accidents resulting from the condition of the roads and the heavy movement of vehicles.

The Later Post-Impact Situation

1. Inventory: Although relatively few deaths occurred, most individuals in the area knew at least by sight or by name someone who was killed. A substantial proportion of the individuals who had undergone impact (over 40 percent) had sustained injuries. Most of these injuries were of a relatively minor nature, not requiring hospitalization or otherwise seriously incapacitating the victims.

Property loss was very extensive. About four-fifths of the respondents reported destruction of, or major damage to, their homes. For the most part, people owned their own homes and had little insurance to cover the losses sustained. In addition, of course, they lost much of their household furnishings.

Other losses, although frequently substantial, were not seen as a serious deprivation. Disruptions of work routines, cooking-eating routines, household routines, etc., while noted fairly frequently, were considered minor in view of the loss of life or destruction of homes.

2. Individual Relief and Rehabilitation: Two-thirds of the tornado victims obtained temporary shelter from kin in nearby areas. Such emergency sheltering was frequently prolonged into a stay of considerable duration. A number of the homeless later moved to a second temporary shelter with other relatives and some of them managed to get quarters (mainly of a temporary nature) of their own (e.g., tents or trailers).

The shelter problem on the night of the tornado was the one that was met mostly by other individuals rather than organizations. Almost no one who needed living quarters, either impact night or in the days following, sought or obtained shelter through any formal organization.

Individuals helped disaster victims in other ways—e.g., in debris clearance and salvaging of property. Most such aid was rendered by individuals to their kin. However, most relief and rehabilitation aid (after the first night) was given by formal organizations such as the Red Cross and the Salvation Army. Exceptions were shelter, debris clearance and salvaging of property which were attended to by the individuals involved with the help of friends and relatives. On the first night, the stricken individuals, with the help of neighbors and relatives, did most things for themselves (e.g., rescue,

and obtaining immediate shelter and emergency relief).

3. Personal and Social Changes: A great number of individuals—both those who had directly undergone impact and those who had not—suffered physiological or psychosomatic reactions. Such after-effects were of relatively long duration—persisting in many instances two to three weeks after impact. However, few of the reactions were particularly debilitating or incapacitating. Relatively few individuals felt that they had changed their values, learned anything new, or acquired different social relationships as a result of the tornado experience. Part of this may be due to the fact that most individuals are not too capable of recognizing such changes; part to the fact that the field study was terminated about three weeks after the tornado had hit—a period insufficient to permit such changes as had occurred to become stable. Some individuals reported a slight increase in community solidarity. While relatively few such social changes were noticed, of those that were, almost all were of a positive rather than negative nature.

Most individuals who had property losses intended to rebuild. There was also a general feeling that the various stricken communities were going to build back. Almost no one felt that rebuilding was useless or impossible, although some questioned the ability to do so without financial assistance.

4. Evaluations of the Experience: A wide range of factors was mentioned as the worst or most disturbing feature of the tornado experience, but no one event or happening was singled out with great frequency. Even searching for relatives, a matter of very great concern during the immediate post-impact period, was infrequently reported. The mass funeral was mentioned by almost no one.

Despite great property loss and considerable injuries, very few individuals felt they had suffered very great overall deprivation. Comparisons were made to what could have happened or to what had happened to others. In general, the event was seen as due to natural forces for which no one could be blamed.

Activities of Formal Organizations

1. Medical Operations: Virtually all the initial medical activity occurred in the town of Searcy. The two small hospitals there were quickly swamped with patients and other medical centers were hastily improvised. Aside from the initial confusion which usually accompanies the sudden influx of large numbers of injured into facilities which are inadequate for handling mass treatment, medical treatment appeared to have been carried out as effectively as possible under the circumstances. Effective improvisation, and a large amount of volunteer aid, materially helped in making full use of the available facilities and supplies.

Virtually all observers agreed that the behavior of the patients themselves posed no special problems in medical handling. Doctors, nurses, and others who worked in medical centers were unanimous in describing the patients as unusually calm, quiet, and undemanding.

Volunteer aid to the medical centers came almost entirely from the non-impact population, particularly the population in close proximity to the medical centers. Over one-fourth of the adult population of Searcy engaged in, or offered, some form of medical center aid. In general, work in medical centers was related to low loss involvement and spatial proximity to the medical centers.

Evaluation of the medical care by both the impact and non-impact population was overwhelmingly favorable in nature. The amount of negative comment was extremely low and was not focalized on any particular aspect of medical center activity.

2. Control Operations: The major control problem was the handling of traffic caused by the convergence of hundreds of persons on the impact area. Outsiders who flocked toward the area were motivated by anxiety, by the desire to help, and by simple curiosity. One of the factors contributing to this great influx was the erroneous radio report, broadcast soon after the tornado by a Little Rock station, that the town of Searcy had suffered severe destruction.

The traffic problem began almost immediately following the disaster and continued for a period of almost two weeks. Medical, relief, mortuary, and other personnel engaging in restorative efforts, generally agreed that the tremendous influx of outsiders frequently hindered or delayed the efficient administration of relief.

The National Guard and the State Highway Patrol were the major control authorities in the impact areas (particularly Judsonia) for a period of almost two weeks following the tornado. The National Guard concentrated on internal protection of Judsonia and Bald Knob, while the State Patrol devoted their major efforts toward keeping out sightseers and toward controlling traffic. The latter organization instituted a system of passes to prevent the entry of unauthorized persons into Judsonia, and this was somewhat effective in alleviating the problem. However, lack of coordination between the National Guard and the State Police occasioned some conflict between the two organizations.

Persons generally distinguished between those who had legitimate reasons for being in the area (e.g., kin and friends, or persons who came to assist in the rescue and relief efforts) and those who were purely sightseers. Persons in the latter category were more frequently singled out for condemnation. However, approximately the same percentage of the impact respondents expressed positive, ambivalent, and negative attitudes toward sightseers.

Reports on the extensiveness of looting in the impact areas were somewhat conflicting, but, in general, the amount of looting appeared to have been relatively small and was mainly limited to minor pilfering. The effective guarding of property by the National Guard was generally credited with the small amount of loss from looting.

Only a small proportion of the sampled population reported that they had lost property which they felt might have been looted, and the value of the property believed to have been looted was quite small.

The population accepted the control measures of the National Guard and State Patrol with minimal conflict and resentment, and the activities of these organizations were generally viewed with favor.

3. Relief Operations: The two major relief organizations operating in the area were the American Red Cross and the Salvation Army. Evaluations of relief were generally favorable in nature, but both the special respondents and the respondents in the regular sample, tended to express a higher evaluation of the Salvation Army than the Red Cross. Praise of the Salvation Army was virtually universal among the impact population and the Red Cross received a higher percentage of favorable comment than unfavorable comment, but criticism of relief and rehabilitation efforts by the Red Cross was the most common unfavorable response to any area of the relief or restorative effort. Generally speaking, this criticism centered around the slowness in getting rehabilitation started and the bureaucratic procedures of the organization.

Volunteer work with formal relief organizations was predominantly carried out by persons in non-impact areas.

One of the major relief problems was the handling of carloads of clothing and other supplies—much of which was unusable—donated by persons outside the area. The work of about 500 volunteers for over two weeks was required in sorting the clothing and other supplies sent into the area.

4. Information Operations: The virtually complete disruption of communication facilities in the impact area greatly hampered the dispatch of essential messages. Amateur radio operators, persons with loudspeaker equipment, and telephone operators in the non-impact areas played a crucial role in the initial relief effort.

Word-of-mouth communication was the major source of information for most persons. This was true immediately after impact and also in the later period. The mass media were relatively unimportant in terms of the total amount of communication.

Informal communication and direct perception were the principal means of discovering the falsity of reports. This was especially facilitated by the fact that most incorrect reports were about the death or injuries of particular persons known to the respondents.

5. Community Services Operations: Most community services—including utilities, the transportation system, and the business community—were disrupted for varying lengths of time. While some peculiar difficulties attributable to the nature of the tornado faced the utility organizations, they were able to restore services in a relatively short time. Debris clearance presented a major problem but the heavy concentration of men and equipment permitted emergency measures to restore minimum traffic movement. In most impact areas, this was completed within 24 hours. The destruction of business establishments and the schools, while causing inconvenience, did not result in any major problems.

People accepted the disruption of community services as an inevitable consequence of the disaster. Few individuals thought of such interruptions as any considerable deprivation. Little comment was made about the restorative efforts of the community services organizations, but the few remarks made, were in the nature of praise for the rapidity with which services were restored.

THE ANALYTIC FINDINGS

Factors Affecting Behavior

1. Forewarning: With a longer period of forewarning, there was the greater likelihood of persons taking actions oriented to the threat of the storm before the tornado actually hit, and also a greater frequency of actions taken to protect oneself and others during impact. Those with very little or no forewarning were more likely to try taking precautionary action after the storm had hit--actions which probably increased the danger. Individuals who had very brief forewarning--less than a minute-- were more likely to take maladaptive actions than those with more forewarning or none at all, and also showed more intense emotional reactions during the storm.

2. Disaster-Related Skills and Training: Those respondents who had disaster-related skills or training perceived the threat of an impending disaster earlier and, therefore, were able to act more adaptively in relation to the threat. In general, the disaster-skilled behaved with greater self-control and displayed more adaptiveness and active orientation to others, than did persons without such skills. This was true in spite of the fact that those with disaster-related skills had as intense emotional reactions of all kinds as other persons. Individuals in this category tended more than other persons to take the role of informal leaders in both the immediate emergency and the later disaster needs of the community. They were less likely than others to have later post-impact reactions in the form of various physiological, psychosomatic, and psychological symptoms, and also showed indications of higher "morale" than others. The disaster-skilled were, in general, at a higher socio-economic and educational level than the rest of the population of the affected areas, and this fact, rather than the specific skills possessed, may account for the tendency towards more effective action and higher morale.

3. Previous Disaster Experience: Data from this study are inadequate to test the relationship to behavior of recent or repetitive experience in similar disasters, which would probably be the most relevant question for a wartime disaster. Most of the previous tornado experience of the respondents was remote in time, and/or very indirect; and the other types of disaster experience were quite different in quality and did not seem to the people involved particularly relevant in dealing with the present disaster. The data indicate little relationship between the previous experiences these people had had and their reactions to this disaster.

4. Social Situation: Persons who were with others during the tornado tended to have more forewarning and to take more of precautionary and protective action before the tornado actually hit. They also took protective action more often, precautionary action less often, during the impact of the storm itself (the latter implying a more rational and adaptive pattern of action in coping with the danger). For those who were with others, engaging in social interaction with reference to the threat seemed to increase the likelihood of having some forewarning of the severity of the storm. Possibly as a result of such forewarning, those in interacting groups showed a higher frequency of adaptive behavior before and during the tornado. Lack of threat interaction before the storm was associated with more frequent precautionary activity during impact itself (usually a maladaptive and dangerous response), and with states of confusion and bewilderment during impact, but was not particularly associated with other intense emotional reactions during the disaster. Males more often took a directing or initiating role ("leadership") during the storm if they were the only adult male present and also reported somewhat greater emotional agitation in such situations. Females more often took such a leadership role when there were children present. It is likely that the differences in leadership and in anxiety reflect the fact that men are more likely to be forced by social custom and expectation) to assume responsibility when they are the only males present; women, when there are children present.

Absence of a household family member showed only a slight relationship to intensity of emotional reactions during the immediate post-impact period, largely because most families were together during the storm, and, those which were not, were reunited almost immediately after. However, concern for the welfare of "extended family members" as evidenced by "searching activities" was associated with heightened anxiety in the immediate post-impact period.

5. Role Responsibilities: Male household heads with dependents differed from [illegible] dependents, and from persons in all other household roles, in displaying more controlled adaptive behavior, and greater protectiveness toward others, before and during the impact of the storm. They also showed a high frequency of community-oriented activity after the storm, both in activities of the emergency phase—such as rescue work—and in later post-impact aid to the disaster victims. They also gave indications of higher "morale" in more positive attitudes about the post-impact problems and a greater tendency to understate their deprivations.

During impact, females with dependents were as other-protective as the males with dependents, but also had the most intense affective reactions and a higher frequency of expressive behavior, praying, and dependency on others. They also show a higher frequency of immediate post-impact emotional reactions—including the "shock-stun" reactions—and of physiological, psychosomatic and psychological disturbances in the later post-impact period. On indices of post-impact morale, they showed the lowest frequency of positive attitudes about problems of post-impact aid and rehabilitation (especially about disruptions of community services), felt most affected by the disaster in a long-range sense (as expressed in "feeling changed"—religiously or otherwise since the storm); and gave the most supernaturalistic "explanations" of the disaster.

6. Danger Involvement: Greater extremity of danger during impact tends to be associated with slightly more intense emotional reactions during the storm, and, to a somewhat greater degree, with shocked-stunned reactions during the post-impact period. During the emergency post-impact phase, those who had experienced more extreme danger were also more community-oriented--particularly in rescue work and aid to the injured. They were also more active than those who had been in less danger, in informal aid to disaster victims, and in disaster-related community orientation throughout the whole post-impact period. In addition to greater incidence of psychological reactions of shock-daze and nervous excitability, they had noticeably higher rate of physiological or psychosomatic symptoms in the later post-impact period. This last difference, however, may be partly due to greater physical exposure and shelter problems in the aftermath of the storm.

7. Loss Involvement: Respondents who had high personal losses--i.e., death of very close kin or severe injuries to self or household family members--had the most intense emotional reactions in the immediate post-impact period (particularly shock-stun reactions) and had more severe and protracted physiological, psychosomatic and psychological reactions (especially of the shock-daze type) in the later post-impact period. As indications of "morale," we note that they had the higher frequencies of negative attitudes toward rescue, medical and mortuary activities, but were quite positive about all other aspects of post-impact aid and rehabilitation. They reported themselves as having much less willingness or intention to rebuild their destroyed homes than did those who had high property losses only, and gave more supernaturalistic interpretations of the disaster than those with lesser losses. Of the persons who were in the impact of the storm, the most actively community-oriented in alleviating the stress of the disaster victims were those with moderate personal losses or with high property losses and low personal losses. These groups also tended to have higher "morale" as indicated by generally positive attitudes toward the various post-impact aid problems, and by a greater tendency to understate their own deprivations.

For the population in adjacent communities, outside the impact areas, there was a different pattern of association between loss involvement and behavior. In the non-impact areas, those who had some loss were more actively oriented to the stricken communities, but tended to have more of physical and psychological symptoms in the later post-impact period, showed more negative attitudes about all aspects of emergency aid and disruption of community services, and also gave more supernaturalistic interpretations of the disaster. In the latter respects they seemed to be comparing themselves with those among their neighbors who suffered less than they did--in contrast to the impact area persons who suffered medium personal loss or high property loss only, who generally tended to compare their situation with that of those who had high personal losses.

CHAPTER XI SOME COMPARATIVE FINDINGS

Previous chapters have presented the detailed findings of the Arkansas tornado investigation. Many of these findings are paralleled by the findings from other NORC field studies (for detailed reports on other field investigations, see Appendix B). The present chapter will attempt to draw together some of the salient findings of the various field studies and summarize them in more general form. Wherever possible, we shall also attempt to state some general implications of the findings for disaster control planning and for further research.

1. The Assimilation of Disaster Cues to a Normal Context: If persons or groups have no forewarning or expectation of the impact of a disaster, they initially tend to define or interpret the event in terms of cues that are familiar. Thus, for example, a large proportion of the persons who experienced the Arkansas tornado assimilated virtually all the weather cues to a "usual bad storm" definition; and many interpreted the sound of the tornado itself as being that of a locomotive passing on the railway tracks near them. In Brighton, N.Y., the initial explosions were interpreted as "blasting"; in the St. Paul plant explosion, many workers in the plant interpreted the explosion as the dropping of heavy equipment, etc. This tendency to assimilate disaster cues in terms of normal or usual expectations was found to be a widespread phenomenon in all the instantaneous disasters studied by NORC. It is particularly characteristic of persons who are unable to directly perceive the precipitating agent (e.g., the tornado's "funnel"; the explosion itself, etc.)

In cases where the destructive agent is familiar or known, the re-definition of the situation—from the "usual" to the "unusual" and from the "non-threatening" to the "threatening"—occurs quite rapidly because of the easily-perceivable consequences of the disaster. That is, the "usual" explanation or interpretation of the cues no longer "fits" the objective events. Thus, for example, when windows and portions of the houses began disintegrating, most of Arkansas respondents quickly arrived at a definition of a tornado or disastrous storm. However, if the destructive agent is unfamiliar to the populace or undetectable by the ordinary senses, the assimilation of the disaster cues may continue so long that protective or ameliorative actions may be taken too late. This was illustrated in our study of the carbon monoxide asphyxiation incident (see Appendix B-9), where the affected workers continued to assimilate the physical symptoms of carbon monoxide asphyxiation until they had inhaled nearly fatal doses of the gas. This finding points to the need for sufficient forewarning of a populace to sensitize them to the appropriate disaster cues and enable them to take effective protective measures. It also suggests the widespread dissemination of knowledge concerning the signs or cues by which to detect potentially destructive elements.

2. Personal or Egocentric Conceptions of the Disaster: A closely related phenomenon is the common tendency of persons to "personalize" or particularize the extensiveness of a disaster. In the Arkansas tornado and other

fairly widespread or diffused disasters (e.g., the Brighton explosions), most persons tended to assess the nature and extent of the disaster in terms of their immediate surroundings, and, consequently, grossly underestimated the scope and destructiveness of the disaster.[1] This tendency for individuation of interpretation is understandable, of course, in terms of the limited spatial perspective of any given person or group of persons. However, it is precisely this tendency, together with the nature of persons' ego involvement, which helps account for the heterogeneity of behavior in the impact and immediate post-impact period. Each person or group tends to act initially on the basis of a definition that is spatially and psychologically restricted to the immediately perceived situation. The highly variegated nature of the situations in any large scale disaster makes for considerable heterogeneity in the behavior of the populace.

This finding emphasizes the crucial need for the rapid dissemination of accurate information concerning the scope and destructiveness of the disaster in the immediate post-impact period, in order to restore efficient, coordinated action. A considerable amount of delay, confusion, and inefficiency results from the egocentric assessment of the scope and nature of the disaster. In some cases, for example, persons who may be in a position to provide efficient, community-oriented aid or assistance (e.g., doctors, nurses, control officials, etc.) become preoccupied with a relatively restricted group of people because they are unaware of the more general need for their services. The demands on their time and skill are often a resultant of chance factors (e.g., their spatial position), rather than the most crucial needs presented by the disaster.

3. Panic and Other Initial Forms of Behavior: The imagery of disaster behavior that is often fostered by the popular literature is one which pictures the population engaging in highly bizarre, irrational, uncontrolled, and maladaptive types of behavior. The evidence from our studies indicates that this is a grossly distorted and inaccurate picture. This misconception seems to arise from the failure to differentiate between social disorganization and individual or personality disorganization. It is true that the initial behavior frequently violates the usual expectations and is often socially disorganized. However, although they are related, social and personal disorganization are not coextensive. Nowhere is this better exemplified than in the initial responses of a disaster-struck population. From the point of view of the persons affected, the usual norms are no longer appropriate to the changed situation which they face and they are forced to act in terms of those elements of the total situation which they can perceive. In view of their restricted, egocentric view of the immediate situation, the behavior may be quite rational, controlled, and adaptive. The "total picture" (as viewed, for example, by an outside observer) frequently distorts this essential fact.

As a matter of fact, the evidence from our studies indicates that the individually non-rational and uncontrolled forms of behavior are much rarer

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[1] This initial, egocentric conception of the disaster is also documented by Janis, in his analysis of the [illegible] interviews from Hiroshima and Nagasaki. Irving L. Janis, [illegible] and Emotional Stress, (New York: McGraw Hill Book Company, 1951), 9-10.

and much briefer in duration than is commonly supposed. Panic, for example, is a relatively infrequent form of behavior on the part of persons in an impact area. Defined as an acute fear reaction accompanied by flight, panic behavior was not found to be a predominant form of behavior in any of the disasters studied.[1] In the Arkansas tornado (where an attempt was made to classify carefully all actions during impact), no case of "uncontrolled flight" (panic) was reported (see Chapter III). In the Brighton explosions and the Bakersfield earthquake there were a considerable number of instances of individual panic, and it was found in relatively isolated instances in the Flagler and Elizabeth airplane crashes, and the factory explosion in St. Paul, Minnesota. (See Appendix B for more detailed reports on these events.) However, even in these cases the behavior was extremely short-lived--i.e., lasting only until the persons escaped from the immediate source of danger.

Analysis of our own interviews and a survey of materials in the existing literature suggests that panic occurs only when:

a. The individual believes himself to be in a situation involving immediate threat of personal destruction and

b. the individual believes escape is possible at the moment but may become impossible in the immediate future--i.e., that unless one gets away, one will be trapped.[2]

Other forms of active, uncontrolled behavior seem to be more common than panic as an initial response to disasters. One of these is "hysterical" expressive behavior--i.e., persons give vent to their fears and tensions in the form of expressive movements or vocalizations--crying, screaming, moaning, praying, swearing, or moving about in a somewhat random, confused fashion. Instances of this type of behavior have been found in virtually all the disasters studied (with the possible exception of the Las Vegas explosion).[3] Panic, however, such behavior has usually been relatively insignificant in relation to the amount of controlled, goal-oriented forms of behavior found on the part of persons directly experiencing a disaster. Most persons may be momentarily confused or bewildered, but the evidence clearly indicates that the majority of them quickly gain sufficient control over their behavior to take relatively adaptive elementary precautionary or protective measures.

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[1] The relatively infrequent occurrence of panic is also noted by Janis in his survey of the available observations on the reactions of the survivors of the atomic bombings of Hiroshima and Nagasaki. Irving L. Janis, Ibid., 43 and 193.

[2] For a more complete specification of the conditions which produce panic, see the abstract of Mr. [illegible]'s thesis, Panic: Its Nature, Types, and Conditions, in Appendix B-10.

[3] For an extreme example of this type of behavior, see the report on a porch collapse in Chicago, Appendix B-7.

4. Social Solidarity and Cooperative Actions: The fact that most persons undergoing extreme danger are not completely stripped of rational control over their behavior is also documented by the large amount of cooperative behavior reported in most of our field studies. In the Arkansas tornado (see Chapter III) and in most of our other studies, a large proportion of persons were concerned over the safety and welfare of others with them during impact and took active measures not only for the protection of self but also for the protection of their associates.

This is especially true in instances where persons have a previous sense of identification and solidarity with their associates during impact. It is less likely to pertain if the associates are strangers or if the pre-existing social bonds are tenuous or minimal in nature. The evidence strongly suggests that the members of a homogeneous, cohesive community or group are more likely to engage in mutual protective, ameliorative, and succorant activities during the various phases or stages of a disaster than a community or group characterized by heterogeneity and lack of social solidarity. In the Arkansas tornado, the Flagler plane crash, and the West Frankfort mine explosion--where the residents had strong pre-existing social relationships--the sensitivity to the needs of others was a particularly marked feature of the actions during impact and later. It was less marked in the more highly urbanized and heterogeneous communities of Brighton, N.Y., Elizabeth, New Jersey, and Bakersfield, California--at least in so far as more widely oriented community actions were concerned. Even in these events, however, members of families and other groups who had role responsibilities for others tended to exercise these responsibilities (e.g., in Brighton, women with children acted to insure their safety; members warned one another and engaged in mutually protective actions, etc.). In Bakersfield, where the actions of work groups with varying degrees of social solidarity were compared, it was found that in groups where members had minimal social bonds, actions tended to be individually-oriented; whereas in more socially cohesive groups, the actions during the crisis period tended to be group-oriented.

The data from our various field investigations indicate, however, that disasters nearly always result in an increase in social solidarity among a stricken population and that even in a community characterized by considerable pre-existing heterogeneity this increased solidarity can usually be counted upon to provide a considerable amount of spontaneous, informal aid to persons stricken by the disaster. There is no evidence to indicate that an extremely devastating outbreak (e.g., an atomic or hydrogen bombing) would be any different in this respect. The majority survivors and persons in surrounding or peripheral communities, though they may be temporarily stunned or incapacitated, probably will organize quickly and spontaneously to meet the immediate needs posed by the disaster. The only possible exception to this increased solidarity and spontaneous relief organization might occur if biological agents were used in the attack and if the fact were known to the affected populace. In this event each person becomes a potential threat to every other person (because everyone is a potential carrier of disease). This condition could be extremely disruptive to the reestablishment of concerted behavior and the organization of efficient relief and control measures.

5. Intimacy of Social Relationships and Disaster Behavior: In referring to the significant amount of other-oriented and cooperative behavior found in the disasters studied, we do not wish to obscure the importance of self and primary group concerns in structuring disaster behavior. The evidence suggests that a special "emergency" hierarchy of values comes into play when persons are exposed to extreme personal danger, and that this hierarchy tends to determine the major orientation and sequence of their behavior. In the events which we have studied, the following sequence of action orientations appears to have rather general applicability to persons in the immediate disaster-struck area:

Action oriented in terms of:

a. Self-preservation or protection,

b. Immediate family or household members,

c. Other primary group relationships (other kinship members, close friends in the neighborhood, etc.),

d. Secondary group relationships (e.g., other members of the community, formal organizational roles, etc.),

e. Personal possessions, private property or material goods,

f. Property or possessions of kin and intimates, acquaintances, and

g. Property or possessions of secondary group members.

The above suggests that, on the whole, the initial referents for behavior are self and those most closely identified with self, followed by those persons less intimately related. It also suggests that the initial preoccupations are almost exclusively with persons; property generally ranks low in the scale of values.

This, of course, is a schematic outline of the general tendencies found in our studies and should not be accepted too literally as a description of the sequence of action in any single case. Chance factors (e.g., physically incapacitating injuries, spatial location in relation to family members), restricted perceptions of the event (e.g., the definition of a widespread disaster as highly localized in extent) or absence of pertinent knowledge concerning the involvement of others may substantially modify the hierarchy of orientations. Moreover, the various orientations should not be conceived of as necessarily mutually exclusive or tidily separated in time. In the Arkansas study, for example, a large proportion of the persons who took self-oriented actions also took other-oriented actions at the same time, or the self-protective act was intermixed into a more general family-protective act. Further, a person may quickly ascertain (sometimes in a matter of seconds) the safety of self, family, and intimates, and turn almost immediately to secondary or community oriented action.

In general, however, the schematic hierarchy of values has considerable support in the existing data and has predictive value concerning reactions during the crisis or emergency phase of the disaster. It should be kept in mind in reading the sections which follow.

6. Separation of a Family and Kin as a Factor in Disaster Reactions: The occurrence of a disaster at a time when a large proportion of the population is separated from members of their family is likely to increase the psychological intensity of the disaster and lead to considerable social disruption in the immediate post-impact period. The acute anxiety of persons concerning the whereabouts and welfare of missing members usually leads to desperate search activity. This acute anxiety was particularly marked in the Brighton explosions, which occurred at a time when most of the men of the community were at work in Rochester and the older children were at school, leaving the women alone with small children. This anxious rush into the impact area of persons concerned over relatives and intimates has been a characteristic feature of every disaster studied. As was indicated in Chapter VII, in the Arkansas tornado, most families were together at the time of impact. However, of those who had family members missing, more than half engaged in search activity in the first half-hour following impact. This was by far the most prominent activity on the part of persons who were separated from their household members in the immediate post-impact period. The data also suggest that those who were separated from their immediate families had a more intense traumatic reaction to the disaster (as measured by the incidence of "shocked, stunned, dazed reactions") than those who were not separated. The persons who searched, of course, were not limited to those who had immediate family members missing. Concern for persons beyond the immediate family--parents, siblings, other relatives, and intimate friends--led many more persons to engage in search activity; and a comparison of the affective reactions of those who searched with those who did not search indicated a greater prevalence of agitated emotional states immediately following impact and an even more marked persistence of such agitation over the six-hour period from 6 P.M. to midnight for the searchers than for the non-searchers.[1] The evidence, therefore, tends to support the hypothesis of a positive relationship between separation of kin or intimates and the prevalence of agitated emotional states.

Generally speaking, the data from all our studies suggest that persons who are acutely anxious over the welfare and safety of immediate family or other persons with whom they are highly ego-involved cannot be depended upon to engage in more general, community oriented activities. They frequently do make brief, sporadic attempts to assist strangers or unrelated persons who are in spatial proximity, but their primary concern is often so pre-emptive that they cannot function usefully or efficiently in relation to more general needs.

Moreover, this anxiety-motivated search activity poses one of the most serious control problems in disasters. The pre-emptive concern of persons who

[1] A factor that probably contributed to the greater intensity and prevalence of emotional reactions among searchers was the greater exposure to additional traumatic aspects of the disaster--e.g., the sight of mangled bodies, badly injured persons, etc.

are missing family members often leads them to expose themselves to new or additional dangers and to disregard or ignore control and authority regulations. For example, men who were searching for their wives or families in Brighton frequently evaded the road blocks into the disaster area or "talked" themselves past them. Similarly, in Arkansas, persons frequently exposed themselves to the danger of electrocution from fallen electric wires, traffic hazards, etc., in their desperate search.

In this connection it should be noted that, while carefully verified official information concerning the condition of particular persons may be of help in alleviating the anxiety of some persons (particularly those who stand in more distant relationships to the person sought—e.g., acquaintances, friends, etc.), most persons will still attempt to make face-to-face or vocal contact with their primary group members. In Arkansas, for example, there is considerable evidence to indicate that persons were not satisfied even with the verbal assurances of other relatives that particular family members or kin were safe. The intensity of their anxiety may have been somewhat relieved by this knowledge, but in most of the cases reported their anxiety was not fully allayed until they made actual face-to-face contact with the missing member. This also applied for persons living at distant points from the disaster-struck communities. The serious dislocation of communication facilities in the area, of course, prevented many persons from obtaining accurate knowledge concerning their relatives; hence, they drove long distances in order to establish contact.[1] Even in cases where relatives had received official word of the safety of kin (e.g., via Red Cross telegrams), attempts were often made to establish direct face-to-face contact with them.

The data suggest that the minimization of debilitating emotional reactions and of confusion and disorder arising from the anxiety over kin requires not only the speedy dissemination of full and accurate information concerning the location and condition of persons in the disaster-struck area, but also prompt and active efforts to re-unite the households.

7. Rescue and Immediate Relief Efforts: The interview materials from our various studies indicate that most of the initial rescue, first aid, and immediate relief activity occurs before the arrival of organized outside

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[1] An additional factor hampered the prompt notification of kin living in distant places—namely, that persons in impact areas frequently forgot the addresses or telephone numbers of distant relatives or their records were destroyed or blown away. Amateur radio operators and other communications personnel indicated that a central file containing the names, addresses, and telephone numbers of persons to be notified in the event of emergency for each family in the community would have greatly facilitated the prompt notification of kin. Moreover, they pointed out that many persons were initially so confused or so preoccupied with immediate problems that they did not think about the problem of advising relatives living outside the area, and that the prompt notification of these persons may have reduced the tremendous influx of traffic into the area during the days following the tornado.

forces and that it is performed by persons who are in the impact area or immediate vicinity of the disaster-struck area. For the most part the first efforts at rescue are unsystematic in nature--being undertaken by kin or intimates of the persons trapped. In Arkansas, Flagler, Bakersfield, the more general, community-oriented rescue efforts appeared to have been undertaken primarily by men who had established the safety of their primary family and who were then concerned over intimate friends and acquaintances in the community. Similarly, first-aid measures and the provision of immediate relief (e.g., emotional comfort, emergency shelter, etc.) are initially undertaken by persons in the immediate vicinity.

In view of the fact that trained outside forces may arrive too late or in insufficient numbers to deal effectively with the immediate problems of rescue, first-aid, and relief--and the fact that these tasks will be undertaken by survivors in the immediate vicinity of the disaster-struck area--it would appear essential that education and training in the handling of these problems be disseminated as widely as possible throughout the general population. Much of the informal effort is highly effective; however, lack of proper knowledge, equipment, and supplies on the part of persons who perform these tasks oftentimes hampers or prevents their efficient execution. For example, there is considerable evidence to indicate that there is widespread ignorance concerning even the elementary principles of first aid and that in some of the events studied improper handling of the injured may have caused a larger number of deaths than necessary or may have further complicated the recovery of the injured. Similarly, training in the most efficient rescue techniques would probably have enabled the escape and survival of persons who otherwise died.

Training of only a few individuals in the community with regard to the effective handling of rescue, first-aid, and relief problems is insufficient. These key individuals may themselves be killed, seriously injured, or preoccupied with their own personal problems. Since it is impossible to predict such disaster consequences in advance, it is imperative that the general population be taught at least the minimal techniques and procedures for the effective handling of these problems. This training should place special emphasis upon the improvisation of equipment and supplies from the materials at hand (e.g., what alternate types of rescue equipment can be used in the absence of mechanized lifts, jacks, pulleys; materials that can be utilized for litters, etc.).

8. Disaster-related Skills and Organized Relief Efforts: The data from our several studies indicate rather clearly that the persons who are usually most effective in organizing the initial relief and control efforts are persons whose usual occupational or social roles have inured them to danger or prepared them for the particular types of problems which are found in disasters. Firemen, policemen, physicians, nurses, utilities workers, morticians, priests, military personnel and other "disaster role functionaries" have usually provided the initial direction and leadership in the various aspects of the relief effort.

The available evidence suggests that there is little or no difference in their initial reactions to extreme stress as compared with the general populace (e.g., they suffer as intense fear as anyone), but that they tend to regain control over their behavior more quickly and begin active, community-oriented relief work earlier and more frequently than persons who have little or no training for the types of problems which arise in the aftermath of disasters.

An important qualification must be placed on these general statements, however. If the trained person is acutely anxious over the welfare of his primary associates, or if death or serious injury have befallen members of his immediate family, he probably will not be able to function efficiently in a community-oriented or professional role. The conflict between his concern for primary group associates and the performance of his professional role is generally resolved initially in favor of concern for primary group attachments. If the person is forced to attend to his trained or professional role while his primary group concerns are unresolved, he may experience severe emotional disturbances (see, for example, the case of the mortician in Flagler, Appendix B-1).

A closely related factor is the use of professionally trained personnel in relief and control operations among persons or groups with whom they are closely identified. If medical and other personnel have to deal with persons with whom they are highly ego-involved, they often experience some degree of personality disorganization and consequent inefficiency in the performance of their duties. In several of the events studied, physicians who were intimately acquainted with their patients admitted that they were not able to perform their medical duties as efficiently as outside medical personnel, because they were not able to maintain the necessary clinical detachment.

All of the above suggests that, ideally, the overall coordinating leadership and the specialized personnel needed to cope with the various medical, mortuary, control, and relief problems should be drawn from persons who have a great deal of training and empirical experience in actual disasters and who are strangers (or, at least, have minimal attachments) to the community or area struck by the disaster. The maximum in efficiency would appear to be obtained by a well-equipped, highly trained, and mobile force of specialists who could move quickly into the disaster-struck area from the outside.[1]

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[1] However, several cautions should be observed by outside agencies in their relations with local authorities: Insofar as possible, outside relief or support units should work through the existing local authorities, because disruptive conflicts and resentments are likely to emerge if the local authorities feel that the outside agency is "taking over" without consulting them. The outside agency should also avoid "fanfare" or publicity which attempts to glorify their own role or claim credit for the relief work. Publicity should be limited to clarifying the types of assistance which can be rendered to the stricken populace and the organization should minimize credit for its own role in the relief work and maximize the role played by the local populace. Our

Within potential target communities themselves, the above observations suggest that alternate personnel for key roles be designated, so that if the persons primarily responsible for a given task are killed or otherwise incapacitated, other persons will be able to assume the role.[1]

9. Role Responsibilities and Disaster Behavior: In Chapter VIII, we noted that persons who had the heaviest role responsibilities in the family (i.e., males with dependents) tended to engage most frequently in other-protective and organizing actions during impact, and showed the most community-oriented activity in the post-impact period. Similarly in the other events studied, it was found that those with well-defined responsibilities for others (e.g., mothers alone with children, teachers with pupils, etc.) tended to exercise better self-control and behave more adaptively than persons who did not have such responsibilities (for additional examples, see Appendices B-2, B-3, B-5, and B-9). This finding buttresses the previous one concerning disaster-related roles and suggests that one of the most important forms of emotional "innoculation" against disasters is to assign specific responsibilities for others to each member of the community.

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studies indicate that outside agencies generally underestimate the tremendous amount of informal aid provided by individuals and agencies in the stricken community. This aid is usually rendered prior to the arrival of outside forces or is of such a nature as to go unnoticed by them. The local populace, however, is usually proud of its own efforts to cope with the emergency and often resents attempts by outside agencies to claim major credit for the relief work. The "playing down" of their own efforts by outside agencies and the "playing up" of the efforts of the local populace has an additional advantage: It tends to counteract feelings of dependency and restores the confidence of the local populace in their ability to cope with the various problems of rehabilitation and restoration.

[1] In formulating disaster plans cognizance also must be taken of the problem of dual or multiple membership of persons in official relief organizations. Such multiple membership may prove a severe handicap in mobilizing the relief agencies for a disaster. For example, when the Civilian Defense organization at Brighton was called out at the same time that the Red Cross was proceeding to alert its units, the latter organization lost key members to the former organization. Two alternatives are possible in solving the problem of multiple disaster agency membership: (1) Individuals should not be allowed to hold important posts concurrently in two or more such organizations; or (2) a priority system could be established so that persons with multiple membership automatically could determine which organizational role to assume--depending upon the nature and extent of the disaster, etc. The latter, however, would be of little value in the event of a disaster of major magnitude, requiring the full utilization of all relief and control organizations. Moreover, it has the disadvantage of requiring information that is frequently not available or cannot be communicated immediately following a disaster.

A clear delineation of the specific tasks, duties, and requirements of each person in the event of disaster (and practice in the execution of these tasks) will probably prove effective both in minimizing confusion and disorder and in allaying preoccupation with personal problems. The program suggested here is not simply the pre-designation of a few key personnel in each neighborhood or area, but the pre-designation of specific roles for the entire population. Key personnel on a local level (e.g., Civil Defense block wardens), of course, would be essential for the implementation of the plan, in order to adapt the roles to the particular needs of the area as well as the overall disaster plan. In order to minimize possible conflicts in roles, recognition should be given to the group identifications of persons (e.g., family, kin, neighborhood, and friendship groups); and insofar as possible the allocation of roles should be made to coincide with the primacy of social relationships.

10. Pre-rehearsed Plans of Action: The evidence from most of our interview materials indicates that persons who have specific, pre-rehearsed plans of action prior to a disaster are more likely to take appropriate action following impact than those who have not specifically rehearsed their plans in the event of a disaster. Practice and drill in the appropriate responses until the action becomes semi-automatic tends to prevent confusion and maladaptive behavior. General admonitions concerning how to behave in disasters, such as those frequently issued through the mass media of communication, are generally ineffective. We have found that these admonitions are often recalled after the disaster; but they usually prove of little value in guiding behavior during the emergency period, since they presuppose the existence of the power of critical judgment, and it is this power which is most likely to be impaired in a situation of extreme stress.

Rather than relying too heavily on the mass media, it would appear important to consider a more personal type of approach in educating and training the populace to withstand the shattering impact of a widespread disaster. As suggested in the previous section, what seems to be needed is not only general information, such as the mass media can supply, but instruction in the specific types of action to be taken by each person. The implementation of this type of training would require block wardens or other local officials to cover each house, business, or institution in their district to assist families, work groups and other institutional groups in arriving at and acting out an emergency plan adapted to the specific circumstances of the household, factory, etc. (e.g., indicating the types of emergency equipment needed for combating the danger, the areas of greatest safety in each building; the way to turn off gas, electricity, and water at their source, the most appropriate escape routes in the event that various rooms are damaged, the quickest and most efficient route to a shelter, etc.).

11. Previous Experience in Disasters: It is reasonable to assume that frequent exposure to the same type of disaster tends to produce emotional innoculation and more adaptive response to disasters. On a very general level, our data tend to support the hypothesis that a considerable amount of previous experience in disasters is likely to lead to greater

control over individual actions during and immediately following impact and a more active role in rescue and other forms of community-oriented action in the post-impact period. However, it is frequently impossible to isolate the factor of previous experience per se and distinguish it from the possession of disaster-related skills, pre-rehearsed plans of action, role responsibilities, and other behavioral determinants.

One of the rather interesting findings of several of our field studies is that persons frequently report that they learned nothing from their disaster experience and have not made any concrete plans for a recurrence of a similar disaster. In Arkansas, this was a relatively frequent response to the question: "Do you think you learned anything that would be of value to you or others in the event of another disaster like this?" Moreover, when queried concerning the appropriate precautionary and protective measures to take in the event of a future tornado, it was found that a large number of persons still had a very inadequate knowledge concerning the generally accepted tornado safety measures (see Appendix A-11 for the measures recommended by the Red Cross). In Bakersfield, despite the occurrence of two earthquakes within a very brief time span and the fact that the area is located near one of the major earth faults, it was the impression of the field observers that most persons and business organizations had not formulated concrete plans of action to be followed in the event of another quake.

It is probable, of course, that verbal formulations concerning the effects of disaster experience on possible future disaster behavior are not too accurate. Despite verbal denials, persons may have learned certain appropriate behaviors which would lead to more adaptive response in future disasters. Nevertheless, the data suggest that previous experience as such is not necessarily the crucial factor in self-control and organized response to the disaster. The more important factor seems to be the extent to which previous experience is utilized in developing and practicing concrete plans, learning appropriate skills, etc. Frequent repetition of the same type of disaster forces persons and groups to the realization of the need for organizing to meet the needs of potential disasters and it is this pre-existing organization of responses to fill specific needs that seems to be the essential element in adaptive response to disasters.

Support for the above observations is contained in our materials on the West Frankfort mine disaster, where it was found that the entire community was both formally and informally organized to meet the problems posed by recurrent mine disasters, and in the findings on the influence of disaster-related skills reported above. Additional support is contained in Chapter VI, where it was shown that there was no clear-cut relationship between previous experience and various forms of organized response; whereas, the possession of disaster-related skills showed a more definite relationship to controlled and active, community-oriented behavior.

Even though previous experience in itself may not lead to emotional innoculation and more adaptive response to disasters, there is some evidence to suggest that previous experience enables persons to arrive at a correct

interpretation or assessment of the event more quickly; and, thus, may reduce the amount of confusion resulting from distorted perceptions and conflicting rumors. In Elizabeth, New Jersey, for example, the recurrence of three successive airplane crashes within a period of approximately two months seemed to have reduced the diversity of interpretations following each crash. After the first crash there was great variation in the initial interpretation of the crash--e.g., some people interpreted it as a bomb, others as a factory explosion, etc. After the second and third crashes, however, most people correctly defined the events as airplane crashes almost immediately. This appeared to be a function of the predispositions and sensitivities aroused by their previous experience with crashes. Similarly, the amount of rumor circulation appeared to decrease with each successive crash. In the first, there was a great proliferation of rumors; but, in the third crash, very few rumors occurred. Previous experience and knowledge of the nature of mine disasters also appeared to account for the restricted scope of rumors which circulated in West Frankfort following the announcement of the mine explosion.

Studies of the effect of previous disaster experience on the behavior of the general populace in peacetime disaster are subject to a number of difficulties, and these should be taken into account in future research in this area. One of the major difficulties is the lack of comparability in amount, type, and recency of previous experience. Most peacetime disasters do not recur sufficiently frequently to expose the same population to similar experiences. In Arkansas, for example, although the area sampled is in the "tornado belt," most persons had not directly experienced a previous tornado. Moreover, of those who previously had been exposed, the frequency and recency of the experience and the type of involvement differed widely. Some persons had gone through three or more experiences; others had experienced a tornado 20 or more years prior to the 1952 tornado; some had had harrowing previous experiences, others had been only minimally involved, etc. Even in Elizabeth, New Jersey, there was little homogeneity in the type of experience on the part of the general populace, since the three crashes occurred under different social situations and in different areas of the city.

In most cases, a general sample of the population exposed to a disaster is unlikely to provide sufficient cases of comparable previous experience to permit valid conclusions concerning the influence of experience per se as a determinant of disaster behavior. The study of persons engaged in "dangerous" occupations or working with organized disaster units (e.g., combat troops, miners, firemen, etc.) may enable the more clear-cut isolation of the factor of previous experience, but such studies are also plagued by the difficulty of separating the factors of training, skill, and role responsibilities from previous experience. Moreover, because such groups are generally more homogeneous with respect to other characteristics (e.g., sex, age, education, etc.), the extrapolation of the findings from such groups to the general population has inherent deficiencies.

For purposes of disaster planning, it would appear safest to assume that previous experience in itself does not necessarily inoculate a population against non-adaptive responses. Rather, emphasis should be placed on organizing the population for the specific needs which develop in disasters, designating specific role responsibilities, training them to handle the

various problems which are likely to arise, and rehearsing their patterns of action until they become semi-automatic responses. The devastating destructive power of modern weapons of warfare would seem to make this course of action realistic, since one disaster experience may be the only experience for a large proportion of the population.

12. The Role of Communications and Information in Disasters: It is probably accurate to say that the most immediate and most crucial need in disasters is the need for accurate information. From one perspective, at least, all disaster problems resolve themselves into problems of communication--for disasters create unusually pressing and urgent needs for the communication of information at a time when the normal channels and technical facilities of communication have broken down or are unavailable to the affected populace. The re-establishment of organized, concerted behavior requires the re-establishment of the channels and technical facilities of communication.

An aspect of communications in disasters that seems to have been given insufficient attention is that the needs for information differ greatly in terms of the person's, group's, or agency's type of involvement in the disaster. Or, to state the problem from a slightly different perspective, the requirements for information in disasters (initially, at least) are highly specific requirements. For example, persons who are in the immediate disaster-struck area require information concerning appropriate routes of escape, derivative or additional dangers, areas of relative safety, the location of facilities for treating their injuries, the location and condition of ego-involved objects outside the area, etc. Persons both inside and outside the impact area require specific information concerning the whereabouts and condition of family members, intimates, etc. Groups, agencies, or organizations charged with responsibility for dealing with disaster problems require detailed information concerning the exact area of damage, the number and location of persons killed and injured, the nature of the injuries, the number and location of persons requiring rescue, the types of facilities, equipment, and supplies needed, the location of their own personnel, equipment, etc. Persons who wish to volunteer their services require information concerning the places of greatest need, whether or not their services are required, the types of aid needed, etc. Persons who live great distances from the disaster-struck area but who have persons or other cherished objects in the vicinity of the disaster require specific information concerning the particular area struck, the exact condition of specific persons and property, etc.

It should also be noted that the informational requirements in disasters are often conflicting in nature. The information needed by one group of persons may not only be useless to other persons, but may actually create greater danger, confusion, and social psychological disruption. For example, information concerning escape routes that may be appropriate to one group of persons in the disaster-struck area may be completely inappropriate to another group located in a different area. Similarly, an announcement that a hundred people have been killed within a given community or area without specification of who was killed may be sufficient for organizations dealing in mortuary services, but will only heighten the anxiety of persons who live outside the area and are concerned about persons in the area. Thus, attention must be given not only to the accuracy of information but also to the particular audience for which it

is intended. Accurate information addressed to the wrong audience can be as dangerous or disruptive as inaccurate information.

The fact that the immediate needs for information in disasters are very specific needs, coupled with the fact that the usual technical facilities of communication are disrupted, means that the mass media of communication (particularly radio, television, newspapers) are of relatively little value to the persons in the immediate vicinity of the disaster-struck area. Word-of-mouth communication becomes far more important as a primary means of conveying information.

Moreover, in most of the cases where the mass media have operated immediately during or following a disaster, they have probably served to heighten rather than alleviate the problems posed by the disaster. In some cases, this has been due to the dissemination of inaccurate information. In Arkansas, for example, the Little Rock radio report that Searcy had been struck led to the needless rush of thousands of autos into the area and a gigantic traffic snarl. In other cases, they have increased the problems by failing to recognize the differential needs of their audience. When Rochester radio stations began broadcasting dramatic accounts of the happenings in Brighton, hundreds of anxious relatives began driving into the area, thus hampering the arrival and departure of emergency vehicles. Generally speaking, it appears that radio, television, and newspaper accounts which portray the disaster in general and dramatic terms are primarily responsible for the traffic control problems found in most of the disasters studied. (For additional examples, see Appendices B-3 and B-6).

The interdependence between information disseminated by the mass media and the types of problems which arise in disasters needs further research and administrative attention. Our data indicate that the over-dramatization and distortion in the reporting of disaster events by the mass media—together with the failure to fulfill the specific informational needs of parts of the general audience—tends to create additional problems that might be avoided. Special attention should be given to the fact that the American population is highly mobile and that most families have kin and intimates dispersed throughout the United States. A brief radio announcement or newspaper account that a disaster has struck a particular community frequently places unnecessary burdens on telephone, telegraph, and road networks. Even though the communities affected by the Arkansas disaster were lightly populated, hundreds of persons from virtually every state in the Union drove to the area to determine the safety of relatives and kin, when they were unable to obtain accurate information concerning them. A widespread disaster in a highly urbanized area would provide a much greater taxing of communicational facilities.

One of the few exceptions to the usual sensational reporting by the mass media occurred in the use of the local radio station in the West Frankfort mine disaster. The manager of the station obtained permission from the FCC to stay on the air 24 hours per day, and the station took special care to verify all information before it was broadcast. Interviews with the

residents indicated that the accurate information furnished by the radio station was very influential in relieving their anxiety and tension and in preventing confusion. Similarly, in Arkansas, the Searcy station, when it returned to broadcasting several days after the tornado, appeared to have been quite effective in appealing for volunteers, supplies, etc. A further study of the use of local radio stations in disasters may be helpful in formulating specific, practical recommendations to stations in other communities.

Generally speaking, we have found that inaccuracy and distortion in information tends to increase with distance from the disaster-struck area, or from the particular activity involved. This seems to apply for word-of-mouth communication as well as communications over the mass media. The degree of accuracy in information appears to be dependent upon at least two factors: (1) the ability to test communications against direct perceptions, and (2) the extent to which the person is ego-involved in the accuracy of the information.

It is not necessarily true, as is frequently suggested in the literature on rumor, that word-of-mouth information becomes distorted and exaggerated in the process of transmission. Under the appropriate conditions, word-of-mouth reports may become more and more accurate in the process of circulation. For example, when their own life or the life and safety of loved ones are involved, people are more prone to weigh and sift the information which comes to them, and to select from the available information that portion which appears to be most plausible and accurate in view of their particular concerns. This tendency for greater and greater accuracy in the content of rumors was noted in the Brighton disaster (see Appendix B-2), particularly on the part of the population in the immediate disaster-struck area. Initially, there was a great proliferation and exaggeration in the content of the rumors (e.g., reports that all of Rochester was "blowing up"; that the school building had exploded, etc.); as the threat continued, however, the more exaggerated rumors tended to disappear and were supplanted by ones which more closely approximated the reality of the situation. The fact that persons were able to check some of the information against their direct perceptions and were highly ego-involved in the accuracy of the information seems to account for this tendency. Greatly exaggerated rumors appear to be more characteristic of disasters where the danger has already past, and tend to circulate most frequently among persons who are peripherally or minimally involved.

The general goal of informational policy in disasters, it would appear from the foregoing, should be speedy, accurate, authoritative information coordinated and adapted to the [illegible] of various groups concerned with the disaster. In view of the fact that the effective solution of virtually all disaster problems hinges on the effectiveness of communications, it would appear important to place major emphasis on the further study and implementation of this goal. Our own data suggest that a corps of persons in every community should be pre-designated as informational specialists and given special training in the speedy and accurate assessment of the situation in the area for which they are responsible. Such a corps

should be available immediately to set up informational headquarters and collect information from various sources, direct the casualties to appropriate locations, compile data on the persons dead, injured, and safe,[1] provide information to the organized rescue, medical, mortuary, control, and relief forces, coordinate this information in their own area and check and clear information for dissemination to other areas.

The site of a central information headquarters in each community or area should be designated in advance, with alternate sites selected in the event the primary sites are blocked or otherwise unusable—and the location of these sites should be known to the populace. Alternate personnel for handling informational problems should also be designated, so that this function can be filled immediately even though the primary personnel are killed or otherwise incapacitated. Necessary equipment and supplies (e.g., portable radio equipment, loud speakers, field telephones, files, etc.) should be stored in relatively accessible but safe locations (e.g., underground vaults) for immediate use. Persons selected as information specialists should have an intimate knowledge of the physical facilities and human resources that can be drawn upon in the event of disaster and they should have special training in the appropriate procedures for gathering and disseminating information and in using various types of communicational equipment.

In connection with the control of technical facilities of communication (e.g., loud speakers, radio transmitters, telephone), it should be noted that persons who possess or control these facilities play an extremely crucial role in structuring the course of events in disasters. In virtually every disaster studied, the persons who possessed loud speaker equipment (see, for example, the Flagler report, Appendix B-1, and Chapter V), radio transmitters, or who were in charge of telephone switchboards, played a vital role in structuring the initial behavior of the populace and in securing outside assistance.

The controllers of emergency communications equipment, therefore, largely determine the effectiveness or ineffectiveness of the emergency relief or ameliorative efforts. Potentially, they have the means to introduce greater confusion or disorganization or, conversely, greater efficiency and organization—depending upon their own motivations, degree of self-control, sense of responsibility, and the accuracy or inaccuracy of the information available to them. Although in the events studied, the persons who handled such equipment generally performed effectively, they were frequently handicapped by lack of appropriate information. This pertained particularly to persons handling equipment at fixed locations (e.g., telephone switchboards) and who were therefore primarily dependent upon information indirectly communicated rather than directly perceived. The

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[1] The compilation of data on the location and condition of persons who are not killed or injured is frequently overlooked. However, the prevention of confusion arising out of anxious searching requires that this information be available as well as information on persons killed or injured. The populace should be instructed in advance to report their safety to a central information point, and informational specialists should also be given training in the speedy canvassing of disaster sites to record pertinent information on the condition and location of persons in their area.

organization of informational services should take cognizance of the importance of these emergency controllers of communications by insuring that they are properly trained and by providing them with the auxiliary services needed to handle their role most efficiently (e.g., by assigning information specialists and couriers to persons handling telephone switchboards).

13. Control Problems in Disasters: In every widespread disaster there arise acute problems in the control of the population. Contrary to a popular notion, however, the problems usually are not caused by the fear-engendered, "panicky," or "hysterical" behavior of the disaster-struck population itself. As we have previously noted, the more passive reactions of the "shocked, stunned, dazed" type are much more common on the part of disaster survivors than the active, uncontrolled flight or expressive forms of behavior. The data from all our studies suggest that the major problem of control on the part of persons in the disaster struck area resolve themselves into problems of communication and positive assistance rather than negative restraint. The survivors who are leaving the disaster area will look to the police and other control authorities for positive guidance—where to go, what to do, where to locate persons, etc.

Moreover, if the data from our several studies are at all representative of disasters generally, they suggest that the problems of handling persons outside the immediate impact area will be greater than handling survivors within the area of destruction. In nearly all the community disasters studied by us, the convergence action of hundreds and thousands of anxiety-motivated, help-motivated, curiosity-motivated and, occasionally, gain-motivated persons has tended to impede the efficient administration of essential rescue, medical, and other relief and restorative operations in the impact area. The effective handling of this problem may initially require restraining actions, but it also requires recognition of the differential needs of the "sightseers" or "unauthorized personnel" and positive steps to furnish the information needed for the several types of persons represented among the "convergers."

From a social psychological point of view, blanket barring of all persons from the area may simply compound the anxiety and may produce considerable resentment among persons who feel that they have legitimate reasons for being in the area. As was indicated in Chapter V, the term "sightseers" has no social-psychological utility—it simply obscures a number of important distinctions in the nature of the converging population. An important problem confronting control authorities is to devise reasonable and effective methods of screening persons who are concerned over relatives and friends, persons who want to volunteer their help, and persons who have left the impact area but have returned to retrieve, redeem, or guard objects which they value, from those persons who are simply curious or who wish to exploit the situation for self-gain.

Several approaches to the alleviation of control problems are suggested by the data from our studies. First of all, road blocks to potential disaster areas should be planned well in advance. The plans should take into account various contingencies in the area struck (e.g., where to

place roadblocks when various specific areas of a city are hit). The evidence also suggests that roadblocks on the edge of a disaster-struck area are insufficient. The converging population usually includes persons coming from hundreds of miles outside the disaster area. Hence arrangements must be made to establish blocks at considerable distances and in all directions. The initial flow of traffic generally comes from contiguous areas or communities and begins almost immediately following knowledge of the disaster. Hence, it is important that roadblocks be manned as quickly as possible. Since the size of the flow is often unmanageable with the ordinary control forces available, auxiliary police chosen from the general population should be selected and trained in advance and assigned specific posts of responsibility.

Information specialists should also be assigned to roadblocks to record the identity, condition, and destination of persons leaving the area and to collect and furnish information to persons converging on the area. Such information should be dispatched to a central informational agency as quickly as possible for dissemination to other informational points. This combination of restraint coupled with positive informational measures and effective screening of the dispersing and converging population may go far in alleviating the usual control problems found in disasters. It should be re-emphasized, however, that the effectiveness of such a program is intimately related to the overall control and coordination of information and control facilities and personnel over a wide area. The release of anxiety-provoking news over the mass media or the failure quickly to establish roadblocks a considerable distance from the disaster-struck area may defeat or seriously hamper constructive efforts.

The amount of looting reported in the various disasters studied has been relatively small and has been limited mainly to pilfering. The bulk of the pilfering has probably been of the "souvenir-hunting" type, wherein persons pick up items that are of little intrinsic value but may have considerable sentimental value to the owners. Most of the events studied by the NORC team, however, have either been of such a nature that they did not present many opportunities for looting or effective action by the National Guard or other control authorities prevented any widespread looting. A more widespread and devastating disaster might present greater problems in the control of looting, although the measures already suggested would probably minimize it. It should be noted, however, that a disaster-struck population is almost completely dependent upon outside authorities for protection of property, particularly during the emergency period. The initial concern and preoccupation with the safety of persons usually means that property is left unguarded. Failure of control authorities to take all possible safeguards for the protection of personal property might lead to resentment on the part of the affected population when they returned to assess the condition of their property.

14. Blame, Resentment, and Aggressions: Much of the literature suggests that resentments, hostility, and blame are inevitable and automatic by-products of disasters or crises. Furthermore, there is a rather widespread belief that the expression of hostility is a matter of aggressive reaction to the deprivations posed by a disaster and is capable of being

discharged against any target. The choice of a target, according to this conception, is an irrational, fortuitous process.

Our data do not support these contentions. The data suggest that blame and aggressive action are rather unusual phenomena rather than inevitable concomitants of disasters. Persons who experience the most intense losses and deprivations frequently exhibit no feelings of resentment and aggression. Even in the "man-made" disasters investigated, we did not find widespread or intense hostile feelings or aggressive actions on the part of the affected population.

Of course, people do speculate on the cause or reasons for the disaster. However, for the most part, this is a fairly rational process, aimed at understanding the event and control over possible future occurrences. It does not necessarily indicate that the object singled out will be an object of aggressive orientation or action. Blame, in other words, is not actually blame for the disaster just past, but for the disaster which may occur in the future. Analysis of the data on blame assessment in our interviews suggests the following general conclusions: (1) The behavior is oriented toward the future rather than the past—i.e., basic to blaming is the definition of the disaster as potentially recurrent; (2) the persons, group, or agents held responsible are perceived as having the power to prevent future occurrences and carry out remedial action, but have failed to take appropriate preventive or protective measures.

In only two of the events studied—the Elizabeth airplane crashes and the porch collapse in Chicago (Appendix B-7)—was the problem of blame and resentment found to be significant. For a fuller discussion of the conditions which are likely to produce blaming and a consideration of the implications for disaster control, the reader is referred to the Elizabeth report (Appendix B-4).

15. The Administration of Relief and Rehabilitation: In most of the events studied, the persons interviewed have reported highly positive and favorable opinions of the rescue, medical, and control efforts. Comments and attitudes toward emergency relief efforts have also been generally favorable but, as was noted in Chapter V, there is a greater tendency to criticize relief and rehabilitation efforts, particularly those of the Red Cross. In two of the events studied, the West Frankfort mine disaster and the Arkansas tornado, both the Red Cross and the Salvation Army were active. In both cases opinions of the Salvation Army were highly favorable, but opinions of the Red Cross, although favorable in the majority of cases, were more frequently critical in character.

Analysis of the evaluations of the Red Cross in the Arkansas interviews indicated that the criticism centered around the following points: (1) the slowness in administering emergency relief and rehabilitation aid; (2) the bureaucratic procedures of the organization; (3) the formal, clinical detachment of the workers; and (4) the publicity efforts of the organization. The praise of the Salvation Army, on the other hand, usually made reference

to one or more of the following: (1) the speed in administering emergency relief; (2) the non-discriminative, flexible manner in which aid was dispensed; (3) the informal, sympathetic approach of the personnel; and (4) the fact that aid was brought directly to those who most need it--the persons directly in the disaster-struck area.

Further studies of the effectiveness of various approaches to the administration of relief are needed. The NORC studies have not focalized attention particularly on this problem; moreover, since the studies have been conducted within a brief time following the disaster, they do not provide data on the longer-range reactions to the various modes of dispensing relief and rehabilitation and the organizations which administer them. It is possible, for example, that a sampling of the Arkansas population after the majority of Red Cross rehabilitation awards had been made, would have revealed a higher percentage of favorable response to that organization. However, our data do suggest that the following hypotheses may be fruitful for further study.

(1) Rapid and indiscriminate aid in the impact area itself tends to heighten the morale of the populace and leads to favorable judgments of the organization which administers such aid.

(a) The emphasis on speed, of course, is obvious. A disaster creates impelling needs that require immediate attention--needs for both emotional and physical succorance. The organization which fulfills these needs most quickly and efficiently is likely to meet with the most favorable response.

(b) The indiscriminate nature of the aid is equally if not more important, although the reasons may not be so obvious. One of the initial effects of a devastating disaster appears to be a "democratization" of the social structure among those directly affected. The pre-existing social distinctions are viewed as inapplicable to the changed conditions produced by the disaster. There is often a widespread feeling of equality of suffering and sacrifice.

Any attempt to introduce pre-disaster distinctions among the population (e.g., differences in need based upon previous wealth or income) during this phase of the disaster is likely to produce resentment on the part of the affected population. One of the most frequently recurring themes in the praise accorded the Salvation Army is that their dispensation of aid is indiscriminant--"they never ask you any questions, they just give," etc. One of the bases for criticism of the Red Cross, on the other hand, seems to occur as a result of their interviews for rehabilitation assistance--which involve detailed inquiry into the person's financial resources, extent of losses, etc. The

imposition of these distinctions during a period when persons have a sense of mutual suffering and sacrifice seems to account for a considerable share of the criticism.

(c) The administration of aid in the area of greatest suffering also appears to be a factor in favorable attitudes toward emergency relief aid. Frequent references were made to the fact that the Salvation Army went directly into the hardest hit area in Arkansas and directly to the mine head in West Frankfort.

(2) The delivery of aid directly to the sufferers, rather than requiring them to seek aid, leads to positive responses and heightens morale among the affected population. The data suggest that a thorough canvass of the needs of a disaster-struck population and the direct delivery of aid in accordance with their needs works more successfully than the requirement that the victims seek aid of their own accord. The methods of the Salvation Army in sending their mobile canteens directly to the sites where persons were working and volunteering various types of assistance to stricken families were frequently contrasted with the Red Cross requirement that persons come to them and "tell their life history" before aid is dispensed.

As noted in Chapter V, from a purely objective point of view a comparison of the methods employed by the Salvation Army in dispensing immediate emergency assistance cannot fairly be compared with the dispensation of long-term Red Cross rehabilitation awards. However, persons do make such comparisons and it is likely that the principle involved might also be used effectively in certain aspects of the rehabilitation work--e.g., sending interviewers to the affected persons rather than requiring the reverse. Certainly in the case of emergency feeding and clothing, such a procedure appears desirable--especially in view of the lack of communication and transportation facilities on the part of the persons within the disaster-struck area.

(3) The provision of emotional comfort and reassurance is an important element in the dispensation of emergency relief assistance to disaster sufferers and leads to favorable evaluations of organization giving such aid.

Persons and agencies engaging in emergency relief should be prepared to give spontaneous, sympathetic attention to the emotional needs of persons who have gone through a disaster. The informal, sympathetic attention and reassurance given by the Salvation Army personnel was commented upon favorably in both Arkansas and West Frankfort. By contrast, the rather formal, detached manner of Red Cross personnel was commented upon unfavorably.

Generally speaking, relief and rehabilitation agencies should be organized with a minimum of bureaucratic procedures and a maximum of flexibility. General goals and requirements, of course, have to be established; but within these, personnel who are responsible for the administration of relief aid should be given maximum freedom in adapting the facilities and services of the organization to the needs of the disaster-struck community. Rigid accounting and reporting procedures, particularly during the emergency phase of a disaster, simply serve to delay or hamper the effective administration of aid and may lead to lowered morale on the part of the affected population.

16. Psychological, Physiological and Psychosomatic Reactions: Most persons who experience a disaster suffer some form of acute emotional-physiological or psychosomatic after effects. Among the more common of these reactions are nausea and vomiting, headaches, general "nervousness," excitability and hypersensitivity, loss of appetite, inability to concentrate, general (vague) malaise, inability to sleep, and recurrent dreams or nightmares. This constellation of symptoms seems to be found in all disasters, no matter how small or large. Moreover, these disturbances are often found among the persons only indirectly affected (e.g., those who have had family members or other intimates killed or injured) as well as among the persons who were directly exposed to danger—a fact indicating the power of strong emotional identification. Other psychosomatic symptoms of stress discovered in the disasters investigated include muscular spasms, soreness or stiffness of the muscles, coronary symptoms, neurodermatitis, and colitis. In some cases these appear for the first time, in other cases they represent reactivations of former complaints.

The persistence of these reactions varies considerably, but many of them last for days and weeks following the crisis period. One of the factors which apparently accounts for their persistence is the rather general tendency to re-live the disaster experience over and over again in memory. Particularly traumatic sights (e.g., the sight or handling of dead and mangled bodies, serious injuries to self or intimates) probably contribute both to their formation and, by virtue of the vivid imagery which they arouse, their duration.

Further research is needed to determine the precise conditions which produce these reactions, the factors accounting for their persistence, and the conditions which mitigate or relieve the symptoms. Our own data suggest that the minimization of exposure to secondary traumatic sights (e.g., mutilated bodies, etc.), the rapid restoration of family routines, and rapid and efficient efforts at relief and rehabilitation are positive measures that may be taken in alleviating the symptoms. Since most of these symptoms arise out of situational factors—e.g., fear for the safety of self and intimates, anxiety over separation of family members, the disruption of family routines, anxieties concerning the future, etc.—the most effective "treatment" of the symptoms is the alleviation of the situation which produced them. In a small proportion of the cases, persons may need individual psychological or psychiatric help. Our data suggest, however, that in the majority of

cases the rapid reorganization and rehabilitation of the community and the restoration of normal routines constitute the most effective means of treatment.

Although these stress and bereavement symptoms have been extremely widespread in all of the events studied, they have not posed any major medical or relief problems. It is probably true that they tend to decrease the general efficiency of the population, but the evidence indicates that they are usually not sufficiently debilitating to keep persons from performing essential tasks or maintaining fairly normal self control. In none of the events studied has there been a swamping of medical facilities as a result of these disaster reactions. Most persons who suffered these after effects, in fact, have not sought medical attention for them; and the relatively small proportion of persons who have sought medical treatment have normally done so only after the emergency casualties had been cared for.

One additional aspect of these reactions, however, should be noted. The existence of these types of reaction to any disaster, raises a considerable problem in emergency medical treatment of victims of an atomic, chemical, or biological attack, since many of the symptoms are also associated with radiation sickness, chemical poisoning, etc. In the event of an attack with these agents, a great deal of anxiety (and a swamping of medical facilities) would undoubtedly occur if the population believes that these symptoms are necessarily indicative of poisoning or contamination. On the other hand, too much assurance that the symptoms are usual aftermaths of a disaster may result in actual victims failing to seek medical attention. A similar dilemma arises in the briefing of medical personnel (particularly auxiliary personnel)--failure to emphasize that these symptoms will occur without exposure to radiation, poisoning, or infection may result in diversion of effort from actual victims, while overemphasis on the possibility of psychosomatic symptoms may result in the symptoms of actual victims being dismissed as psychosomatic in origin (until the condition has progressed to a point where treatment is hopeless).

HUMAN REACTIONS IN DISASTER SITUATIONS

VOLUME II

SELECTED INTERVIEW TRANSCRIPTS

AND EXHIBITS OF FIELD MATERIALS

APPENDIX A

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Appendices

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Transcripts of Eight

Arkansas Interviews

TRANSCRIPTS OF EIGHT ARKANSAS INTERVIEWS

INTRODUCTION

The complete typescripts of the following eight cases are presented to give some notion of the depth and range of the material found in the interviews and to provide a series of complete accounts integrated from the point of view of the person who is "telling his story." Thus the reader can obtain a type of perspective which is lacking in the statistical tables and in the short illustrative excerpts quoted from the interviews.

It is impossible in the space available to present a large enough sample adequately to represent the wide range of respondents, situations, and activities found in the total study; but an effort was made to obtain as much variety as possible in eight interviews.

Except for Case Number 1, which is presented in toto, each case has been cut only by eliminating repetitious and completely irrelevant material. The cases were also altered by deleting or changing the names of persons or places which might violate the anonymity of the respondent, and by omitting the many interjections by the interviewer (such as "oh," "I see," "really," "uh huh," etc.) which were designed to show the interviewer's interest in the respondent's story.

A short abstract of each of the eight cases precedes the series of full transcripts.

Appendix A-1

The respondent is a 51-year-old widow. Just prior to impact she tried to alert her teen-aged son to danger. He did not heed her until seconds before the tornado struck. Both were picked up bodily by the tornado and sent flying for many feet. The respondent landed in a tree and suffered minor bruises; the boy was blown into a pig pen and suffered a gash on the head. They joined some neighbors who made an attempt to get a doctor for them but they were unsuccessful. The respondent treated her own injuries that night; she did not participate in the general relief and rehabilitation. She was evacuated within a day or so by another son and taken to Little Rock where she rented an apartment. Her material losses were very great and she suffered considerable sense of deprivation.

Appendix A-2

The respondent is a man 42 years old, married, has two children, and is a salesman. He lives in Judsonia, which suffered extremely heavy damage, and is familiar with all the surrounding towns in the area, because of his occupation. He presents a detailed panorama of results of the storm.

The respondent was working in Searcy when he saw the storm clouds gathering. He tried to call home and found the circuit dead. He drove back home going through the fields at many points to avoid the wreckage on the

highway. He found his house completely leveled, but soon learned that his wife and children had gone to the neighbor's house during the storm and were not injured. He located them and then worked all that night and the next day helping to dig people out of the rubble.

Appendix A-3

The respondent is a 33-year-old woman with no children. Her husband owns a small business. She was home with her husband when the storm struck. Neither of them was injured, although the house was severely damaged. She was particularly concerned about her mother and sister who lived nearby. She found them unharmed and they were looking for her. Some of her neighbors were killed and she had to search through the hospitals to find an uncle and an aunt who were injured. The respondent spent the first night in a storm cellar seven miles outside Judsonia. She spent the next few days at the central information desk for the relief organizations working in Judsonia. She considers herself to be very fortunate since she was not injured and none of her family was killed.

Appendix A-4

The respondent is a 29-year-old married man with two children. He works in the local shoe factory. He was on his way to a "picture show" with his wife and two children when the storm struck. They had just parked in front of his father's store, and the children were waving to his father inside, when the car was picked up into the air and the brick store building collapsed.

After the respondent realized that his father was under the rubble and beyond help, he ran to his father-in-law's house and helped rescue them. Although his own wife and children were not injured, his wife's mother, father, and sister, and his sister and sister-in-law were injured. He spent most of the night helping dig people out of the rubble. Later he discovered that his house was damaged beyond repair.

Appendix A-5

The respondent is a 22-year-old married woman who was seven months pregnant, the wife of a construction worker. She was at home fixing supper for her father and mother, brother, sister, her sister's husband, and her husband, who had not yet arrived.

She was trying to shield her mother during the storm and received a blow on the head, making her unconscious. People had told her that she was trying to get her mother out of the wreckage, but she cannot remember anything about it. Her mother died of injuries and all other members of her family were hospitalized. She lost all her clothes and furniture as well as the house, which was completely destroyed.

Appendix A-6

The respondent is a 71-year-old semi-invalid who was sick in bed at the home of her son-in-law when the storm struck. There was a few moments' warning and she and her daughter were trying to get her grandson, who had been standing beside the bed just before it suddenly became dark, to lie down on the bed with them when he was blown through a hole in the roof and killed.

Although she was not seriously injured she had to be carried out of the wreckage by her son-in-law. She suffered a number of psychosomatic symptoms and tried not to learn about the fate of friends and relatives for fear that they might have been killed. Many friends and relatives were killed and her house was destroyed. She had had a previous experience with a tornado and hopes that she will not live to see another one.

Appendix A-7

The respondent is a married man 28 years of age who lives with his wife and daughter in Searcy. He is a laundry truck driver and was on his way back to Searcy when the storm was striking and the lights went out when he arrived at his home. After it stopped raining he went to "downtown" Searcy where he heard that the tornado had "blown Judsonia away."

He took people who were concerned about relatives to Judsonia in his laundry truck and brought back people who were homeless. He learned much later that a second and third cousin had been killed and a first cousin had been injured seriously. None of his immediate family was in danger. He worked overtime in the laundry and cleaning plant which was giving free services to the victims of the disaster.

Appendix A-8

The respondent is a married woman, aged 31 years, who was at home in Searcy with her husband, her two children, and her sister-in-law when the storm struck. She was cooking supper, had pulled the blinds when it looked like a storm, and didn't realize a tornado had hit until a neighbor told her. Her brother came for her husband and they left for Judsonia without telling her about the storm so that she would not become upset.

Her house was not damaged, none of her relatives or friends was hurt, and she worked for the Red Cross for 2½ days, but the stories of the victims made her "so nervous" that she quit. She had little contact outside the house after that time and relied on others for most of her information.

Appendix A-1

The respondent is a 54-year-old widow. Just prior to impact she tried to alert her teen-aged son to danger. He did not heed her until seconds before the tornado struck. Both were picked up bodily by the tornado and sent flying for many feet. The respondent landed in a tree and suffered minor bruises; the boy was blown into a pig pen and suffered a gash on the head. They joined some neighbors who made an attempt to get a doctor for them but they were unsuccessful. The respondent treated her own injuries that night; she did not participate in the general relief and rehabilitation. She was evacuated within a day or so by another son and taken to Little Rock where she rented an apartment. Her material losses were very great and she suffered considerable sense of deprivation.

Case 1-1

I: Now we will just begin at the beginning: tell me what happened to you during the storm?

R: Well, the,—'course she don't want me to tell about that, the way everything was, five o'clock, well, me and my son, we had got the hog and got the pen built, and had the hog about three weeks, before the tornado came. She was doing fine, well, had to build a chicken yard, and get his poultry house, all equipped with electric lights. So Saturday—Friday afternoon about one-thirty, we started on the chicken yard, and we got the chicken yard all cleared, bought enough wire from the lumberman, so we undone the wire, put it around the post, tacked it up, got it all up—was working on the gate, got it through 'bout four o'clock, and then we cleaned the grouper and got equipments for the electric lights all ready and planned on going to Searcy and getting his chickens—his hundred chickens—on Monday, and start his chickens. So we had everything done and ready to start in on Monday morning. This was Friday. So, we hadn't had dinner yet. I said, "Well, now run down and feed your hog and do your work." This girl was here—she wasn't at home—she was down here at Little Rock, and so I said, "I'll fix dinner." Well, I run in and built the fire in the stove and he got my nite water—we had to carry water from the well,—fed his hog. I went ahead and fixed our dinner, and we ate. I guess it wasn't over thirty minutes, because it was five-thirty when it all happened, and we just got through eating and I bunched the dishes and put them in the pan to wash and I was watching the cloud. So he—the boy—went in the living room, and sit down and pulled his tee shirt off. He had on a tee shirt while he was working—he was warm—just pulled his tee shirt off and slipped his slippers off and kicked them across the rug and got the Gazette paper—we hadn't had time to read it all day. Got the Gazette paper and spread it out on the floor and laid down and was reading the paper. Well, I went out the back way, out to the kitchen and looked at this cloud, watching the cloud you know—so I come back in and I said, "Son," I said, "We are going to have something bad out of this cloud." He said, "aw no, you are just scared, Mother." I said, "No, I'm not scared, but," I said, "the clouds don't look right." I said, "There is something going to happen out of this cloud." And so he just kept saying that I was scared and for me to sit down and be quiet. So anyway, why I started back to the kitchen—you know—went back into the kitchen to do my dishes—well, I couldn't do them....I was so nervous, you know. It was just bothering me about this situation where everything looked—and the atmosphere—it was just as still as it could be...and just once in a while you could hear a little thunder, sound like it way off. Well, I left my dishes set on the stove and come back in the living room and sit down and talk to him—tried to get him to put a shirt on—tried to get him to put his slippers on—and he said, "Mama, sit down," he said, "there ain't nothing gonna happen." Said, "we might have a storm or something." I said, "You get up and go look." Well, he got up and went to the door and looked—'course, being a boy, sixteen years old, he wasn't frightened any, you know. He said, "Aw, it is just some storm clouds—I believe we may have a storm ..." I said, "Well, let's go over to Johnny's." There is a little house

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"I." stands for the remarks of the interviewer.
"R." stands for the remarks of the respondent.

just across the road that it didn't demolish—wasn't all tore up—but it was took away from where it sit, and jammed in the ground a corner of it. Tore up one room considerably so I said, "Let's go over to Johnny's." (That was our neighbor.) He said, "Well, Mamma, we are just as well off here as we are at Johnny's." And he said, "You know, I don't like to go away from home," he said, "when a cloud comes up or a storm." He said, "Let's stay here—we will be just as well off here." Well, I wouldn't go across 'cause he wouldn't go with me. I didn't want to go by myself and leave him there because I was still aware of this cloud—going to be something bad out of it. Well, I stayed with him. Well, he just barely got the sports—he read all about the sports—you know, in the Gazette—ball sports, and so he was a-reading on that. And so directly I a--, went back to the kitchen and come back in and it was getting—the wind then was getting up. And so I come back in and closed the kitchen door. For some cause,—I don't know how come I to do it—I pushed the kitchen door too, just like I thought maybe I'll never see it any more—I don't know how come I to feel that way, but I did, I just pushed the door to. And so that morning Mr. X had just delivered me a bedroom suite and so we had it all fixed up in the bedroom suite and I had my bed made up and never did get to sleep on it. Tornado got it that evening, you see. Well, I went to the bedroom and so when I went into the bedroom it had a middle door too, and by that time the wind was getting cold —it was—was the atmosphere, it didn't seem like it did. And a few minutes before that—so the atmosphere was getting cold, wind was blowing up. He was still lying there on the floor reading his sport news, in the paper. So I come back out and I said, "Son," I said, "I mean it this time. You get up and get you on a shirt; we've got to do something." He said, "What are we gonna do?" I said, "Well, Son, we just have to stay here now—it is too late to go anyplace." I seen then, you know, that everything was getting a real bad—and so I said, "We'll have to stay here."

Well, he jumped up from there and started to the bedroom to get his coat, and about that time the windows came out of the kitchen. I heard them blow out on the floor. I ran for the door, you know, to go in the kitchen to see if I could put the window back and he noticed, by that time, it had got on his nerves. And so he run and grabbed me and wouldn't let me go in the kitchen. Pushed the door to and latched it. He said, "You stay out of that kitchen." Well, I come back then. 'Bout that time I looked out the window. I said, "Son," come here and look out this window." (That was the living room window.) So we walked over to the window and looked out the window and you couldn't see nothing. It was just pure gold dust, just looked like gold dust, the atmosphere, you know, was that color, and I couldn't see a house, nowhere, not a house for about six feet. Well, I couldn't see the house for this atmosphere color, you know. It was a yellowish gold-looking color, and just looked like it was full of mist, just fine mist was all you could see. Well, when he seen that, why he had started in the bedroom to get his coat. Well, I run in there and got my long spring coat—my best coat,—out of the closet, put it on, and he started in to get his coat. By that time, you couldn't—it got dark and he couldn't find his shirt and the lights went off and we couldn't find a thing and so he couldn't find his shirt. But he run over to me again and he said, well he ran over to me and about that time we heard the kitchen popping, you know, cracking. Well, we knew it was a-going.

Well, he started in to go into the bedroom to get his coat after all that started. Well, when he went into the bedroom to get his coat, he opened the door, and the bedroom went and that was the last I seen of him. And so, that was it and I--just the way it was--when he opened the bedroom door, why I heard the bedroom go. Well, of course, I was praying at that time, that is all I was doing--is standing there with my hands this way--praying. And of course and a-- so-- when the bedroom went I never seen no more of my son. Well, I knew that I was going, too, 'cause I knew the whole house was going at that time. Well, about that time--when the bedroom went--I looked over towards my living room drapes--that was wine color, about the color of that chair over there--and I looked up and they was all up in the living room--just seemed like they was in the living room--just going up in the air...about that time, I felt the top of the house go off and I went with it. I never knowed no more 'till it was all over, and when I found myself, I was in the top of a tree top--fork like this, you know--wedged right down between these forks--of this tree that had blown up by the roots...and I was just sitting there hollering for my son. When I come to myself, I didn't know where I was at, and I didn't know what happened. I knew something happened but I didn't know--what--where--at the time, what--where--at the place I was at. I didn't know where I was at, you see. I couldn't tell--it was still just pouring down rain at that time. And everything was a-hitting me in the face. 'Bout that time I looked up--I had just--I had my head down like this among these limbs and I kinda looked up like that--and here come a cushion out of my divan that was in the living room. And I seen the cushion coming full force and I reached my arms up and grabbed that cushion and stuck it over my head--like this. And at that time you could hear boards and things hitting and pieces of tin, and I was afraid something hit me in the head--I was safe that far--so I grabbed this cushion, just throwed it over my shoulders. And when I did that, I heard my son hollering, "Oh, Mother! Are you all right?"

Well, I knew then that he was safe, you see, and so I said, "Yes, come to me." Well, he couldn't hear me on account of the rain and so much noise. And I looked up and when I looked up--there pushed the cushion back off my head. I looked up and I seen him just jumping, you know, just jumping across on stuff that had all piled there, and he finally got to me. Well, when he got to me, I said, "Son, where you're at?" and he said, "Mamma, I don't know;" he said, "I thought I was going to Mr. Flynn." And he said, "I was going to--the other way." And I said, "Thought you was going to Mr. Flynn's?" and he said, "Yep." And he looked up the road and he said, "Well, Mr. Flynn's house is gone, too." And I said, I just said--"Lord have Mercy on us." Like that, you know. So I couldn't get up--I couldn't move--it was my hip--and this leg here was all cut, all down in here, and I was bleeding, and he had a big hole in his head--the scar is growing up and little pointed place up here on his forehead. But he was bleeding all over and I was scared to death about him--afraid he was hurt seriously, you know. So I said, "Are you hurt, Son?" And he said, "A little bit," and I said, "Don't worry about that," I said, "Come on and let's get out of here."

Well, of course, he pulled me up the best he could. I got up out and then of them limbs and I couldn't walk--when I first got up I couldn't walk at all.

Well, he held me around my waist, and I put my arm up over his shoulder and he tried to get me out of that tree top. Well, we finally did scramble around, and we got out of the tree top. Well, when we got out of the tree top, then, why the most of it, you know—the worst had gone over and we could begin to see where we was at. Well, I looked across the road and I said, "Well, there is Johnny's house and it is not gone." And my son said, "Well, it don't lack much of being gone, but," he said, "I believe they are in there." So we walked over there and they had a big truck sitting out in the front—out in the road by the front door. So about that time, Johnny and his wife and three children were coming out the house to get in his truck, and he started over to see about me, and met me about half way. And helped my son to get me in the truck, you know, and he was going to try to get me to a doctor. So we got in the truck and he started the truck and we got as far as the school house and it was all tore up—and there was a telephone posts down and treetops—and wires 'til we was afraid to go anywhere, you know, on account of those wires—never thought about the juice being off, you know—and it wouldn't have hurt us none—but we didn't know it. And so we decided then that we'd on down further and try to get out to Judsonia over on the highway, you know—out the other road. Well, we started down that way and it was worse that way than it was the way we was going. Well, we turned around and went back to the steel bridge, going out down towards Bald Knob. Got down there and he run out of gas. He didn't know he was out of gas—and we just couldn't get no further. Well, we sit there all night, in the truck, and I just suffered all night long. Well, we couldn't get nowhere the next day—Saturday morning—we couldn't get nowhere—it was just—they wouldn't let you on the highway, you know. Well, we never did get first-aid. We had—we had to go 'round and over to Johnny's, my neighbors, and we had taken a bath the next morning and got all that ole filth off of us, and here just used rub alcohol. Well, Saturday afternoon—and I had a son that was working here at Little Rock—a grown son, 28 years old—he is single—he was working down here at Little Rock, for the Brown Company. Well, of course, he was watching the papers, you know, to see if we was on the list of the dead or was hurt, and he couldn't find our names, so he just got in his car and came on up there, see—they wasn't allowed to make any trips—they wouldn't let them from Searcy on up—and he heard that over the radio, over the news—so he decided by Saturday noon that he could get up there, see. Well, so Saturday noon, he came after us, and by that time, why, I had had a bunch of old dirty quilts and things tore up over my place there. I kinda dug out some of them, had them hanging on the fence, you know—thought maybe I could wash them—I didn't want to just leave them there.

And—I had a brand new washing machine and a refrigerator—it is still up there—it is demolished, but everything I had—I didn't save nothing—just a few clothes—now there's a spread that came out of it, and it was just as black as this rug, here, just as dirty as it could be. I had to send it to the laundry, but it tore all to pieces, just tore up I don't know in how many places. Torn up! And so that was the way it all happened.

And it was just over and well, it seemed like it was an hour, by the time I got kinda uneasy about it, four-thirty or five o'clock. But a—it was all over, we didn't know what it was all about, seem like, 'course the shock got

me so much—so bad—that it was several hours before I could kinda, you know—get back to my—regain my conscience back to where I was, you know, to know and to understand what had happened. I—I wasn't hit nowheres only on my hip, here, and it was bad. This leg was cut in several places, I was bruised all over, bruised, this shoulder—a limb hit me on my shoulder—I felt it, when it hit me, on my shoulder, but—the bruise places are about gone, they're still sore, but we never did get no treatment of any kind, before Saturday afternoon. Then, why, my son gathered up some suitcases and things that we had there, had clothing and stuff in it, but they was torn all to pieces, clothes scattered all over the limbs and everywhere. Well, we got in the truck, then, his car—and come on down to Little Rock. So he rented this apartment and we came on down here, and got here and got kinda cleaned up. We never did go to a doctor, though, never did. We thought, you know—we got along that well, and we wasn't no need to go anywhere else. So we didn't.

I: Well, how about your boy; what had happened to him? When he...?

R: Well, he covered hisself in the hog pen—it was, I guess, a hundred feet from the house—down there at the edge of the woods, you know. So when he found himself, where he was at, he was a-holding one of these hi-line wires, it was broke in two, you know. It was dangling, it was down on him, but broke in two up there, but down on the ground. And he was a-holding that kinda guide himself back to where he could know where he was at. And so when he got down as far as he could on it, why he was coming out of the hog pen, and a—the pig pen had a brand new barn and Mr. Flynn furnished the wire for him and helped him to build his fence. And this, there was a tree top that fell down, across the pig pen, didn't miss him, oh, that far, I don't think—this tree limb had fell down—but somehow or another he was on a big rock or something there, in the pig pen, when he come to himself then—it was the pig pen there by him. Well, he just got up and out of this pig pen, someway or another, and got a hold of this wire to get away, you know. And he went by it a long ways. So—he decided then that that is what it was—a telephone wire. Well, then, when I seen him, he was just kinda jumping over things, you know, half stooped, the wind was still a-blowing and stuff was blowing in the air. And so I got the glimpse of him and I seen he was all right—he was still living, you know—and I felt some better about it. After that I seen that both of us was still alive—I don't know how we was either—I can't understand it. I—'course—it is a mysterious thing when you see death right in your face, nearly—and then escape. But I just don't know. 'Course a higher power, I guess, took care of us. When we was both standing right together, and in this room, you know, and he had his arms around my waist, the last time I remember anything, but he said that he turned me loose to go and get his coat out of the bedroom, out of the closet. Well, when he opened the door, of course the bedroom, well, he went when the bedroom went. That is the last time I knew where he was at. I was right there by myself. Standing in the middle of the living room and the doors blowed open—the front door came open—and when the front door came open—why—I—I was standing in the middle of the room, and I just thought, "Well, I'll push the door close. I don't know what made me do it, but I went over and pushed the door, and when I started to push the door to, I seen my drapes flying up over my head, you know, and that is the last thing I remember. And when the drapes, —Oh, no, it is not the last thing I remember...when I seen those

drapes blew up, I looked up, you know, and seen the ceiling a-going—and I went with the ceiling. When the ceiling—and that was the last thing that I remember—is the ceiling and these curtains going up in the air. I felt it-I—I—felt that I had risen off the floor—I felt the air and it took my breath—and water was pouring down my face, you know—I remember that.

But it just kinda took my breath, it just seemed like I was going way up—up there—somewhere and I don't know but I never did know when I hit, but I know I must have been hit pretty hard to have had all this cuts and bruises on me. It was over this hip and leg—I couldn't walk for two or three days. But a—it didn't break any bones, but it hurt me right over my right kidney, there—there was a welt, I guess as big around as my finger, come from that, and come out over this hip here for a week or more. And I started once to go to the doctor. My son told me, said, "Mother, you better go up there, up here to the clinic and get a check-up," said, "You could be hurt on the inside..." I said, "Well, I'll wait a few days. If I don't get to feeling better, I will go." 'Course I'm better. I just kept using that alcohol, took a bath every day, and then rubbed that alcohol on it—seemed like it took the soreness out. Well, we got along all right without taking anything—I mean without going to a doctor, without having anything done. We couldn't get to the doctor that night up there, we couldn't get on the highway, and of course Saturday morning, it was, they were so busy picking up the dead—you know how that was.

I: What happened to the girl?

R: ... Loretta Frank. Well, anyway, her teacher, Miz M had came out and got her Wednesday evening, and she stayed all night up there at Bald Knob. Thursday morning, then, they left on the six o'clock bus—the school bus you take down—the school bus brought them down to Little Rock. Several number of pupils, you know, from Bald Knob High, they came on down here Thursday morning. Well, they stayed here all day Thursday, and Thursday night and Friday and was to stay 'till Friday night, and then the bus was to bring them back. Well, 'course after this tornado happened at five-thirty Friday afternoon, why, 'course they all got the news, you know—'course she just got so upset, why she had her teacher, or some of them—just kept on 'till they brought her on home. Brought several of them, I guess, (third party—brought them all home.) Yes, well, they wasn't going to, they was going to wait 'till Saturday morning, on account of everything happening—they was afraid they couldn't—afraid they've have a wreck—but some of them got so nervous—the children—and all on account of their parents, they was afraid, you know—something happened to them. Anyway, the bus driver just loaded them all up and come on...well, Mr. and Mrs B. then, met them—Jane and Loretta here—their daughter—so they brought Jane on to me, Friday night, about ten o'clock, and of course I had done got over to this other place then, Johnny's place—they have a fire over there—so after we—we was wet—we just soaking wet—we had to stay that way all night—it was cold—and it come up another cloud, you know, and we thought it was gonna be another storm—and so Johnny got us all out in the cab of his truck and we went to school bridge and stayed down there 'till daylight. But we really didn't have to go. Well, they brought her on out—Mrs. Brown did—from Bald Knob—when she got back from Little Rock, and 'course she was right with us there, 'till the next morning, after the tornado passed over. I wasn't looking for her that night—

I didn't think they could make it up there, as it was—they like to had a wreck on the highway, you see, getting up there—so many cars—people so excited, you know—kinda afraid for a bus or a car to be on the highway. Why, it just picked up cars and people traveling, you know, on the highway—it blowed them all to pieces and I guess killed some of those people in the cars—people traveling. Found pieces of cars blew over to my house. From the highway over there...

In the spring—and I wanted the children to finish their schooling up there, and then we were going somewhere else. Wasn't planning to stay up there because there wasn't enough work up there. Berry season is the only kind of work you have up there, for the women and the children, you know....

I: You say you spent part of the night down by the steel bridge. Could you tell me a little more about what you did down there?

R: The rest of the night? We just stayed there and people coming and going, you know, looking for their loved ones and their friends. It was up the other road, you see...and it just people coming and going, you know, off that highway, up through there, when we stayed down there at the steel bridge—that is—when we run out of gas...Oh, we had to just sit there 'till daylight. We got out and walked back to Johnny's, back up the hill, from the bridge, and 'course as I told you, it came up a sort of cloud and we sit there and watched that cloud for ever so long, you know—'till all kinda blowed away. And so after that, why—it begin to get daylight. We went on back up to Johnny's then, and stayed up there. Some time up in the day, why, he taken his family then and his wife and three little fellars—he had three little children—and taken them and went on to Southern Arkansas, to her mother's and his mother's, and just left his house and everything that was in it—in his house, and me and the children stayed there 'till we could get somewhere. See, we didn't know no place to go—wasn't no one ever come over there and seen about us or nothing—just there and just had to stay there 'till something was done about it.

...Mr. G, the man that owns the places, his house was all tore up and he was going to have to move from his house, you see, 'till he gets another one built. Well, we knew we couldn't stay there just a day anyway, but Johnny left us there with this place and all of his furniture, and we had to have his food—he left his groceries—told us just to help ourselves there. He wasn't—he wasn't—he did not have anything damaged, what blowed away—but they thought they were going to—and a—so he taken his family to Southern Arkansas and left us there. Well, he was to come back Tuesday and we told him we'd have somewheres else to go between then and Tuesday so he was to come back Tuesday—well, to move his stuff—to move his furniture away and let Mr. Flynn have his place, to live in 'til—you know. He got one built.

Well, they started. He has five or six sons and they are all gonna build him a home back, so you see they were all started when we left up there on a Sunday. Started in on this new house. Well, we left out then Sunday night, about eleven o'clock, ten or eleven o'clock, and come on down to Little Rock. Got in here Monday morning about two, I guess, or three. Monday morning, the 25th, it was. So we came on here, then, my son had done

rented this house on Sunday. See, he came up there Saturday evening. Well, him and my little boy came back down here. They left us there with Johnny's place, you see, 'cause we had a place to stay, but we didn't have no clothes. I was still wet and nobody's clothes fit me, see, and I had to just stay in those wet clothes. I dried them around the fire--I stood around the stove and dried those clothes on me that was on, and my heavy coat, 'course it never did get it dried 'till I got down here and sent it to the cleaners...but anyway, that is what we did until Sunday.

Then Sunday morning, my son, my oldest son and my little son came on back down here and he rented this apartment Saturday evening--found it in the paper, you know, and came on over here and rented it from this lady--'cause she, you know, knew we was tornado victims and so she rented it to us already furnished. So he came back and told me then the best he could do was to get a furnished apartment. Well, I said, "Son, I couldn't have any other now because I have not got no furniture." He said, "Well, that is what I figured." Well, he could have went and brought a housekeeping outfit if he wanted to, you know--if we couldn't have found a furnished place--that is what we would have to have done, but it was so much better to get a furnished place, you know, because furniture is high. Well, he went ahead and rented it and came back after us then Sunday so we came on down here that late Sunday afternoon--Sunday night, I mean, and we have been here ever since. Seem like a mighty mighty nice person; she is a nurse, this lady that owns this building--just her and her husband. Husband is an old man retired--way older than she is. She is very sweet to us.

Well, we made it all right--was lucky enough and thankful for that, too. We did get a place, you know, fit to live in, a nice place to stay. 'Course we will stay here, 'till we can do better, when all of us gets jobs--I imagine he will start to work Monday, at the drug store. We really don't know for sure but if he don't maybe he will find something else. I don't have anything yet. I tried. I been at the employment office--my work is alterations--that is about the only thing I can do,--in the way of work, in public works that way. 'Cause I don't have education enough to do office work or anything like that....I can sew and do those things.

Well, their school, then, at Bald Knob, was dismissed and their teacher up there told all the children that they had passed their grades 'till September--they only had five more weeks, anyway. 'Course, they only got about two more weeks now. If we had been at Bald Knob, you see, so--they all passed, from their grades to the next grade if they waited until the 11th and start down here. So they couldn't come down here and go to school--you see all their books and everything is up there, and they may not use the same kind of book....So we found that out, the boy just went ahead and found him a job, the sixteen-year-old boy--he said--so he went ahead and got him a job. He has been at work since. Twenty-five dollars a week, not much, but it will help out 'till, you know, it gets better. It would be tough if...anyway, by the time we came away from there--'course we was getting along fine 'till this all happened--that is something we don't know one day to the next what is going to take place the next thing....

I: You mentioned Johnny and the small children—could you tell me a little more about how the children were acting? His children?

R: Well, they were getting scared to death. They were small children—one of them was just a baby, and there wasn't either one of the other two—oldest one is five years old, the other about three and a half or four and a half, and the little girl was about four, I think. The little boy was three and a half, the baby was only a year and a half old. They were young people, young wife and children. They were just—those children—I've never seen children any nervouser or scared in my life, but Gloria, that is his wife, she was telling me, you know, when they seen all this happening—they seen those houses, you know. Well, they couldn't see the houses going but they knew it was a tornado, the way everything looked, so I know her. And my door—and her door—too, was a glass door like that. Well, she went to the door and looked out after it was kinda over, of course. She said "Johnny, Mrs. Brown's house is gone." She said, "We better get over there and see about her."

And so that was me. I live just kinda caty-cornered across the road from them. Well, of course they started over there, but after—but we met them at the road, and those children were just screaming—those two oldest ones—they was just scared to death, hanging on to their mother's coat, you know, and their Daddy. And so they had to talk to them and they began talking, you know, about my house being gone—Mrs. Brown's house being gone. Well, Johnny said—when it all was just so bad, began to happen and everything and the tornado began taking those places—he said he felt his house—so he told his wife, he said, "Get the baby and get back here behind the bed." Well, he just pulled his bed out away from the wall and him and his wife and those three children got down on the floor behind the wall. Well, that was the very corner that was twisted all to pieces—that corner that they were in. And I said, "Johnny, you shouldn't have done that—the thing to have done was to stand right in the middle of the floor—I can tell, you know, 'cause mine is all over." He laughed and he said, "Yes, a person never knows where the safest place is." But he said, "I did that to keep from things hitting the children or hitting any of us 'cause we could get under the bed." Well, I said, "Don't ever get under the bed 'cause," I said, "if I ever did it would crash down on you." So we talked about it the rest of the night, you know. How we should have done and what we didn't do—and I think it would be that way. Well, of course she said after it kinda got better, why they felt the house, you see—well the house was picked up and moved off from the blocks—I'd guess six feet from where it stood, each both ways, and pushed over at one of the bedroom—the windows was all out, and the roof was all off of it—half the roof was off it, the kitchen and just the main front room of their house—was a new house. My house was an old house, their house was a new house—hasn't been built very long, and it had the living room—I think it had two or three floors, the bottom floor and then another floor across there and then another across that. But it has a pretty good foundation—it was pretty strong—it is still—but nothing strong enough for a tornado, understand. But anyway, it stood it, but it hit it right smart and twisted it, and this corner that Johnny and them was in was jabbed down

in the corner in the ground. You know, just a great big hole, was sitting up like that. But it was all right. We could all stay in it, you know, dry, and it was still raining, you see, off and on, 'til way in the night. And those little fellars was really hysterical there for a while. They just didn't know what had took place, you know, and they could see my house was gone and Mr. Flynn's house was gone and the other few houses was just a clean swipe. My house was a clean swipe, just everything was gone, down in the woods, across that creek, down there where the steel bridge was—come over by the cotton plants, a lot of my stuff. I never did go see, go over there and get anything, 'cause I couldn't. I knew it was torn up, anyway, so I just left it. I've got some valuable papers up there that I'd like to go back and see if I could find, but I don't know whether it would pay me to or not. I—It was so many people, you know, going around picking up things here and there and if you got anything at all, why, if it is worth anything it is gone by now. 'Course Mr. Flynn—I told Mr. Flynn kinda watch it and I said maybe after I get straightened up and kinda reconciled I was a-coming back up here and look through that place again, and he said all right, he would do the best he could. Mr. Flynn was the man I rented from. 'Course he was gonna live in this little house right across from me, you know, and until he got his house built, so I told Mr. and Mrs. Flynn to kind of watch it and see that people didn't go there and carry off a lot of stuff. I said, 'Course I may never get back up here but," I said, "if I don't next two or three weeks, why," I said, "then it is all right—do whatever they wanted to." 'Cause you know how that is—everybody just flocked in those places there and lot of people did.

I: Ah, what sort of things were done...?

R: Well, the ones that came over to my place before I left—Saturday—all day Saturday, helped me. They—see, I couldn't get through anything. I could see a piece of maybe one of her dresses or piece of one of my coats so one of the boys—you see—kinda under some ole lumber, you know, or dirt, water, —it had rained so much—it just run over everything muddy. And I couldn't get it out, you see, 'cause I couldn't hardly walk, and so those people that was there that morning—Saturday morning—helped me. They helped me to get things out from under these pieces of boards and tree tops, you see, and I had a sewing machine and it was broken into a jillion pieces. Well, I had a lot of valuable papers, you know, of course in the machine drawers that I kept there—and it would be handy if I needed them, and I couldn't find a thing. So during the day, why one of the men had found the parts of the machine—he found that little—that goes around, found the wheel, and then he found the old treadle—it was a treadle-type machine—he found that, and I don't know—if the small pieces about that—about like that, you know—was an upright arm frame—he found some of that...but he never did find the drawers and things, never did. He looked all over, the biggest part of the day, all through the tree tops, under those big pieces of lumber. Now the bedroom floor was just as good as it was when I lived in it. Just picked that bedroom floor up—you see it took this bedroom away—just picked the floor up 'cause 'twasn't none of the rest of the bedroom around. I had my son's pictures, in Service, enlarged on the wall, couldn't find a one of them—only just the frames tore all to pieces, just tore everything to pieces

except the floors, and I had the floor painted around the rug and it was just as pretty it was as the day I finished it. It just took that floor up and just sit it back over on another—set it back over a pretty good piece—the house—just taken the floor and just sit it down, you know, kinda over on a tree that had blowed down, and a side of it was resting up on a tree top. And that floor, was—see, I couldn't see under that thing, and some of the men that morning, they lift up a corner you know, to see if there was anything under there, but all my furniture, everything I had, everything—living room suite, bedroom suite, had a table there, brand new table, never had lit the table lamp—it was just tore all to pieces, so I left it laying up there in the yard, parts of it, just busted all to pieces. The shade was nylon—it was just tore all to pieces—frame and all, we just left it lay there. Well, my bedroom suite, I got that morning—never had slept on it—it was just torn to pieces—everything—the spring was just beat up something awful. And a—all the rest of the furniture—my ice box, washing machine, had a utility safe—a kitchen cabinet, and dining room suite—they was all just tore to bits, wasn't a piece big enough for anything. I never seen anything tore to pieces like that was. My washing machine was bent awful bad, the lid was tore up and bent—all the rubber that was on it—the hose that was on it—it was tore aways, just seem like somebody just took and just tried to tear it up—the agitator was still in there, the way it was. Now my ice box—the door was off the refrigerator, it was Kelvinator—the door was off of it, pulled out, I guess, fifty feet from where the box was, and the box just turned over face down, and all of the drawers and the freezer compartment that was in there, was just blowed all over the place. The drawers—one of the drawers I found—the storage drawers in the top of a tree, way down in the next street. Sit up in there and it was just a big piece—the door was torn a pretty big piece and it was turned upside down. I think the boy found the fastener, it was a long fastener about like that one across ways—had it on the door—he found it way down in the woods. My cook stove—I had my own—awful nice cook stove—it was just busted all to pieces, everything I had—my rugs—I had rugs on every floor, and pieces about like that—was all you—'cause the rugs was just splattered all over everything. (I guess that must have been Jane—.) What my son and I felt hitting our bodies—he was cut all to pieces—you see, he was naked, his body was—just had his trousers on—and he managed to get his shoes on 'cause he had his jeans on when he was l ing there on the floor reading the paper. Well, he—when he did see it was getting bad, he just stuck his feet in his slippers but never could go to the bedroom to get his coat, and he turned around and couldn't find his tee shirt. That he pulled off, you know...and it just caught him so quick that he was put out without anything on but his slippers and his jeans. His back was cut all to pieces....

I thought, you know, that I could keep my washing machine, but we seen it was bent up so hard that it took all the enamel off of it to straighten it, and the rubber—part of the rubber was all torn—I had to brought more rollers for it—one around the edge and one around the bottom, and the lid was just ruined, the lid was, and we saw it was no good. That must have been what it was—hit him in the back and me on my arms and legs—that little piece of linoleum—it was just little ole small pieces (third party—that couldn't have cut him the way it did—his back—that linoleum couldn't cut

his back.) I don't know, but it could, too, if it was blowing in the air, might come in places..well, the awfullest things that has happened since I moved down here. I have a son at the air forces, he is thirty years old and he is married, but he is stationed down in Texas at the air force base not too far from San Antonio. And so when all this happened—well of course—he went to the Red Cross to find out—you know. His brother...his brother is the one that is working here at Little Rock, the single boy. He, his brother, ah, called his half-brother, her brother, and he is stationed at another airfield there, so he at the time, though—Mildred called Jimmy—he was at Dallas—and so she called down there and got him and told this Jimmy Rogers, her brother, to notify the boys, the other two boys down there—and that he just didn't have time to tend to that, 'cause he was looking after me. Well, so they did, so Jimmy, he goes ahead and notifies the other boys down there, so anyway, after it has all been over, well, I got two letters, I think, from the boy and he still hadn't heard from us, wanting to know if Mamma was safe, and what this and what about that? And he couldn't find any list where I was killed or anything but he just stayed with the radio and the news trying to find out and said he couldn't find out. And in a case of that kind the Red Cross —was to give immediate help, you know, give immediate help, well, they didn't so, anyway, because they couldn't find me. Well, I left there and come on down here and—anyway he said—he went to the Red Cross there in Texas and they told him that I wasn't even in the storm and that my house wasn't even touched. Imagine! Isn't that awful, and that boy thought, you know, that everything was all right. And so he writes the letters to Jimmy. Well, I had a letter the other day and Jimmy sent it to me. Jimmy come to me, you see—he come down here to see about me. Well, after - I - the Red Cross—I went to the Red Cross here or my son did here, and helped him get a furlough—an emergency furlough—through the Red Cross, and this Helen...over here, what's her name—lady at the Red Cross called me over the phone and tell me he was getting a furlough so he could come home here and help the other boy to get me straightened out. And if we needed anything—to get it—you know—so—anyway he came on home. Soon as the other son here, called him, you know, and he told him to notify the other boys but he said, "I don't think it is necessary for them to come home." Well, Jimmy said, "I'm a-coming home, if I'm gonna get me a break through the Red Cross, he said, "I'm coming—I'll come home." So anyway, they did—he did, he went through Red Cross, some way or other—they called the lady here, you see, then she called me and then—and through the Red Cross he got a ten-day leave. And so he notified the other boys and just here the other day, why this oldest son, my—down there in the air force—he still went to this Red Cross and they told him, you know, that everything was all right and that I wasn't even in it and that my house wasn't even touched. I don't know where they get such a message as that. I don't know how they can—well—so, anyway in the meantime—and since then, I sit down and wrote to him and told him in a letter—this oldest boy of mine, what had happened, and I made a picture of it on Saturday—I made eight films. My son brought his Kodak up there you know—so I made a picture of the house—I've got them in there now—the ones that we didn't send off—so I made a picture of it, so I sent it to my son—two or three pictures of it—the place—it was all demolished, you know—they were all home at Christmas, you see, and they knew the location so—I sent them all a picture of it and told them just how

everything was, how it all happened, you know, and what we was doing, and what we had done and so—I guess by now, why—he finds out the Red Cross down there wasn't—as true as he thought they were. When she told him, you know, that I wasn't even bothered, that I wasn't even hurt—was hurt worse than any of them—as far as that is concerned—'cause wasn't a piece of it left—it was just demolished and everything I had in it. I was just fixing to go to town on Saturday and have my furniture insured—I had just got everything in the house, you know—got enough furniture—nice furniture to keep house on, and me and the two children—the rest of our lives as far as that is concerned—and so I was planning on going to Bald Knob on a Saturday—see, this was on a Friday—and I had a bedroom suite, too, and I was planning on going Saturday and have my furniture insured. 'Course I knew the ice box and washing machine was already insured, but I won't get nothing out of it, only just about half what I paid in, you see—I only owed Ninety Dollars on it—there was four hundred and some odd dollars, but I got a letter from the man, the Memphis finance company, yesterday and he said that they would do whatever they could, that they was awful heavy at this time being so—destroyed in the tornado—makes no difference about that—my insurance is just as good as anybody's else's and they are supposed to, 'cause there is a man that went to the storm area, there at Searcy, and they had their meeting Thursday to fix up this insurance here and all this finance stuff, with the finance company, so he came down here last Monday, I think it was, to get in touch with me, you know—wanted to know if we found anything, and we did, and we was sitting there talking about it.... He went out to the place to pick it up—he knew that it was destroyed. So he wrote to the man, I mean he fixed up these applications and sent them in—so I guess the way this guy wrote that he had surely heard from this man—you know, who was taking care of the storm—tornado insurance down there at Searcy. It was a Prudential insurance company, it is a good insurance company. Well, if I could just get enough back, you know, to get me a washing machine—'course the lady furnishes the ice box, but I have to have my washing machine—I have to do my washing here—and that is ten dollars every week in the world for the family wash, you know, that is the laundry, wearing clothes, etc. I'd like to do my own washing.

I: Well, how about the first-aid and relief work that was going on up there? What about it?

R: Well, I haven't—there has been a lot done up there, just been a lot done, a lot done lately and a lot of fixing to do, but still I didn't own my property, see, I just rented by the month from Mr. Flynn. But I was a widow and I wanted the children in school and that was the best place I could get—I couldn't find a place in Bald Knob, when I came down here from Maywood, two years ago, so when I came down to Bald Knob, Judsonia, I said here—I mean when I came down there—and so I was just lucky enough to find place—this four room house there—not far from town—you know, just off the highway there...where I could raise some chickens, you know. And I thought it would be just a grand place for me and the children, you know. They could help here and there to do—you know—he had a dairy farm there—we could help him and the children just lived a little ways from school...and the school bus came right by the door, right in front of it, so did the mail man, the mail

route, came right by the door, and I thought it would be a handy little place and I'd just over there and rent out there. So I couldn't find anything in Bald Knob when I rented out there that time, not far from town, and so anyway, so after it all happened it wasn't nothing I could do, you see, I couldn't get nowhere, couldn't get to the highway. Well, the next day then this son that works down here, he got up there that evening about three or four o'clock. Well, it was getting so late then he couldn't do anything, but just him and the other boy switched back that night, came back down here, to be here Sunday morning to hunt for a place. He knew he had to do something, so he come on down here. Well, then, Sunday night about one or two o'clock, they came back. But it was Monday morning when we moved back down here—that is the way it was—it wasn't Sunday night, it was Monday night, 'cause that is what we did on Monday morning. Well, so we got up and I cooked breakfast and we washed the dishes, made the beds—I left this girl—hanging out wet quilts and things that I gathered up over there—and that bedspread and two or three other spreads that were tore all to pieces. I told her to spread them around on the fences and let them get dry. If you'll remember, the wind just blew for three or four days after that was over. Had to dry them 'cause I was gonna bring them and see if I could have them cleaned up. I couldn't afford to throw them away 'cause we'd had to buy—so anyway I left her there to take care of that, so me and this oldest son of mine went to Bald Knob. I told him I'd have to go up there to see about house furniture—I mean about some cooking utensils—and was gonna bring up, 'cause I didn't have a thing—everything I had was right there and busted up. So anyway, we went on up there to Bald Knob, well when we got up there, I met several people I knew, so they asked me, said, "Now listen, you can get a little bit of help if you just go down to the Methodist church where they are set-up there. Well, I said, "What is it—the Red Cross?" and they said "Yes." And I said they couldn't help me much 'cause, I say, I've not got anything—everything I got is just what I got on my back, is all. And I had the clothes on then, all the clothes I had, you see, I had all the clothes—had to go to Bald Knob in those clothes 'cause it is all I had. So I went on up there, so two or three of the ladies, Mrs. Bain, for one, was up there, taking care of the clothing part, you know. She was giving out, you know, the clothing, and they didn't have anything there in that little building that I could use myself. I got some—two-three pair little ole pants for the boy, but they were old and some of them had to be patched. Well, I didn't fool with them because I know if he worked he had to have better than that, so I just let it go and come on. Went on over to Mr. X, the man that run the furniture store there in Bald Knob, to return some wire that I didn't use. I had taken it back to him—I found it there, you know—the tornado hadn't hurt it—only kinda dent it a little bit—never had been undone from the store—it was still there—I had taken it back to Mr. X and he gave me credit for it and got my money back on it, you see, and taken this wire back and I told him about my furniture. And he said, "Don't you worry about that—just forget about it." That was my bedroom suite, you know. I didn't say any more about it 'cause it was just tore all to pieces. Well, he told me then, he said, "You go over to the Methodist Church and," said, "the Red Cross there will give you money or whatever it is you need." Well, I said, "the only thing I can use right now is a little money to get away from here."

I said, "I don't have a penny," and I said, "that is all I have to have—is some money—that is all I want—if I go down there, why I'll get straightened out." She wanted to know, then, where I was going, and I told her I was coming down here with my son, that he was going to try to find us a place down here. And so I went on then, over to the Red Cross, at the Methodist Church at Bald Knob and talked to the lady in there. So she had me fill my papers and fix them up and transfer them to the lady down here at the Red Cross—'cause I was coming down here. Well, she gave me my first month's house rent, the Red Cross did, they gave it to this lady, because we came in here the 21st, the 25th, you see, and we are supposed to pay our rent in advance, but of course this lady said she could wait on us 'til the 1st—it is fifty dollars a month. Well, I knew that if I could get that much from the Red Cross that would be a big help to us. You see, 'cause this fifty dollars coming in, it would be hard on my son, and hard on all of us. So they did—she went ahead and fixed it up—the lady did up there at the Red Cross at Bald Knob—she fixed it so this lady down here at the Red Cross could send a check to this lady here at the house—she got her check about a week after—from the Red Cross. Well, then, I told the lady, if she didn't mind, she could give me a little check to get me some dishes and cooking utensils—that I didn't have a thing—even if I get a furnished apartment—they didn't furnish cooking utensils and dishes. Well, she give me a little order to Mr. X's store up there to get my cooking utensils. I got just a few vessels, you know, a dish pan, a coffee pot, a few stewers to cook in—at Mr. X's, and about a half set of dishes—I got about six plates, six cups and saucers, and one platter—no bowls whatever—didn't have any bowls—that is all I got in the dish line.

Well, my son has some silverware, this boy of mine—he had a set of silverware of his own, so we are using his silverware. So that was all the help that I got from the Red Cross. But I picked it up—and saving it—the old clothes—of course everyone of them was tore, they wasn't a one that I didn't pick up there of my clothes that I had laundried and except something like bed clothes—now my sheets and pillow cases all got ruined and soiled—had to be washed but they were in a large trunk. I just happened to have my ironing put down in this trunk because through the winter I didn't use them—only my pillow cases 'cause we had double blankets, you see, when it was cold. My feather bed got tore all to pieces—I had two mattresses, innerspring mattress, a new one—of them got tore up pretty bad, but I brought it with me and got it cleaned and fixed up. It cost us some money to get all fixed up. Cost me $37.50 to get my laundry washed and do all them dirty things that I took out, that I picked up. Brought them down here, tied them up in a blanket and the cleaners—the woolen clothes that was hanging in the closet there was this—all on a rack on hangers and everyone of them was all together with paint just poured all over them, splattered all over them. But that paint didn't come out but I think I can get it out 'cause the cleaners didn't try to get the paint out. If I had known the paint was on there I'd tried to get it out, but didn't know it was on them. I had a half can of enamel that I had painted my bedroom floor, with before Christmas. I brought a new rug and I painted around the rugs, see, and I didn't use all of the quart, and so I just put the lid back on it and set it on the stairway, on the stairs in my kitchen in the corner of the kitchen, and I had it with the brush sitting up on this stairway. Now that is

what it is, that ole paint, and the lid came off of it and just splattered that paint all over everything. But anyway, they got it all looking nice except dabs of paint here and there and I got to take some gasoline and get that out. But it cost me right smart to get my little dab of clothes cleaned up. But, still, we can use them—this dress I have on is one—I mean this white that was on it—had something faded all over it—and paint all over it—but I got it out—I washed it several times.

I: Ah, you mentioned that you didn't get any medical attention?

R: No, we didn't. We never got one bit—did we Jane? No medical attention whatever. Not even first-aid. The only thing we knew that we could do was a bath and rub alcohol,—Johnny and his wife had there—they had full bottle sitting up there in their house. And so when I—they—when we got over there—why, they built up this fire and we washed me and the boy—cleaned up—used this rub alcohol. But I couldn't sit down—I couldn't lay down all night—I just had to keep walking. I was just so sore—I couldn't move. I knew if I laid down I couldn't move the next morning. And I had a lot to look after out there at the place where it blowed away. So I just stayed up—every once in a while I—Johnny gave me a pillow and I pulled up a chair and I kinda eased down on that. I was just sitting there a little bit and I just hurt so bad I had to get up. 'Course I'd get up—go to walking, you know—try to keep that soreness down, and using that rub alcohol was the main thing—the only thing I had and I think that is what kept the soreness from getting so bad—and working, too, and moving....

I: Now, how about Johnny's folks—were any of those injured?

R: No, they wasn't any of them had a scratch on them. No, they were all saved. They was all right. If it hadn't been for them, I don't know what we would have done that night 'cause their little but was the only one that we could go into and we used all next day for Mr. Flynn's folks—all his children from here and there was there, in and out all day—hadn't been for that little house, I just don't know what we'd all done. 'Course the big room, the kitchen, the bedroom—was tore up right smart—had the windows all tore out of it—everything and the top off—couldn't use the bedroom, but the living room—the front room—no, they didn't even get a scratch, either one of them— 'cause they weren't outside, you know, where anything could hit them. They were on the inside of the house and their room wasn't hurt a bit, any more than it was taken off the foundation—set back.

I: How about any of the others—any more hurt?

R: Oh, my Lord, yes. There was Mr. and Mrs. R. I had—one on each side of us—there was a Mr. R. lived on one side and another one lived on this side of me. They named R. They got hurt and everything they had blowed away. Both the wives of these Mr. R.'s are in the hospital. I wrote them a letter the other day—how is Mrs. R.—is she all right? (Third party—she is still in bed in the hospital—her legs—and she has to go back to Little Rock.) You know their house was just blowed away like mine—everything they had is to pieces and her and her daughter, too, blowed them like it did me and my son.

She got hurt pretty bad, Mrs. R. got hurt bad enough—she went to the hospital. Well, her daughter did too; she wasn't hurt real bad....

I: Well, how did they get to the hospital?

R: Well, I just don't know. I never did learn how in the world they got them to the hospital—I couldn't get out. Well, you see I lived in between those and I don't know how they got this Mrs. R. out—up above me now, that was the school house 40 in one of Mr. Flynn's houses—she lives just across the road from school house 40—of course their house was just swept clean—just like mine was—not a thing left and they got them out that evening, after the tornado. They had to because Mrs. R.—both of the Mrs. R.'s—got hurt pretty bad and one of them had a head—brain concussion.

I: Did you say one of them had a brain concussion?

R: Yes, that was, what was his name?—last name was R. He lives up there. Never did find out his name—what was his name? His name was R. But I forgot his first name. The other R.—they lived down below me there—his name was Louis R.

I: Well, we can cut this off, if you want to read your letter there.

R: No, I just want to look over it. I'm not in no hurry. I just thought maybe there was something in there about her mother...so his name, I don't know—how that they got to the doctor. I don't know how they got Mrs. R. away from there, her and her daughter, but they left that night, that evening, just as soon as it was over. When we went on down there, you know, I told you about us getting in the truck, and drove down to the highway around there—different places, you know—trying to get out, you know, to the main highway, and we couldn't on account of the wires and telephone posts and just everything blowed down across the road. You couldn't get across or over with a car no how. Anyway, we turned around at that school house 40 and went back to steel bridge that takes you out on the highway there—just two miles this side of Bald Knob. Well, we got down there and we run out of gas. We couldn't get no further so we thought maybe, you know that there might be something—maybe if we could get there—would be some way—if we could get me and my son to a doctor somewhere else, you know—coming through there—they was going back and forth looking after the relatives that had had their houses destroyed, and there was Mr. V.—lived over there.

I: The other cars were going back and forth?

R: Yes, they were going back and forth—yeah, I don't know—we—just—they was hunting for their people. 'Course we didn't bother them and—so we didn't stay there but a few minutes after we got down there and seen how everything was, and they said they wouldn't let you—you couldn't get on the highway, though—it was just too many cars going and coming—just going back and forth. And sirens, you know, ambulances—it was just terrible, going all up and down the highway there. So I told Johnny, I said, "Johnny, I'd rather go back to the house—stay up at the house as to stay here 'cause sitting in the cab of that truck I was hurting so bad I couldn't hardly be

still and he said, "Well, we will just turn around and go back to the house." So that was along about—I don't know—that was after you came, wasn't it? (Third party—no, that was before.)—you came? Well, we went back down there after she came, some time in the night, you know. We saw the cloud—came up—well, all got scared and got back in the truck and went back down and stayed at the steel bridge. Then we had to—run out of gas and had to stay there then 'til daylight and so—anyway we went on, come on back to the house and didn't try to go to the highway. And—so we stayed there then 'til daylight the next morning, and then we went to Bald Knob—no, that was Sunday—Saturday morning. I didn't go to Bald Knob 'til Monday morning. That is the way it was.

But they said—I thought when I went to Bald Knob I'd see the doctor there, you know, I'd see him, but there wasn't a doctor up there. They was all down at Searcy operating. You see, down there with the people that was so much worse than we was up there—couldn't get a doctor so the only way you could get a doctor they told me, when I said something about it—they said you couldn't just see the doctor—just to go down there, 'cause they was in the operating rooms. So we just never did bother about it. I told them I'd just wait 'til I got down here and if I didn't get along all right I'd see a doctor down here at Little Rock. So that is why I didn't bother with it up there. They was all so busy—had so many people to look after that I figured was a whole lot worse off than I was.

I: Ah—did you see anyone that sort of went to pieces or lost their heads and didn't know what they were doing during the storm or after?

R: See, I didn't see anybody during the storm 'til it was all over and—everything was quiet. You didn't hear anything only just the noise of the storm, that was all. The only thing that I heard, and then after it was all over—why of course they begin then, you know—to come in and out—find out about their relatives there. Mr. Flynn's relatives—'course they were over at Mr. Flynn's here. They have a daughter that lives on the highway 67 there and a new G.I. home they had just built. It tore it up and all the top of it. They had to move out to another place, down towards Judsonia, 'til they could get their house fixed. So they came over to see about Mrs. Flynn and as soon as we got out of our rubbish there, my son he went up to see about Mr. Flynn and they were out to the barn at that time. The barn had tore up and fell down on one of his fine mares and killed her, and killed several head of cows, some heifers and calves he had, so they were all at the barn. My son went to see about Mr. and Mrs. Flynn. He was afraid they was killed or hurt—he just went right on to see about them as soon as he got me away and got me over to Johnny's house—why he hit out up for the barn. See, it was just across from the barn lot from this other house—that was Mr. Flynn's barn...

So he went on up there to see about them and he come back and told us that Mr. and Mrs. Flynn was all right. Mr. Flynn didn't even get a scratch, but Mrs. Flynn got her leg hurt a little bit. But she could walk, and so they were all right. The daughter and her son-in-law came and got them right after it was over, you know—and went over to their place so they got them and stayed over there 'til the next day some time, and when they came back over there to

pick up and try to get the stock took care of—you know, they had a lot of stock and 65 head of White Rock chickens and all of them got killed but ten heads, and he had all that to carry off, you know, to look after. So I never seen anyone or heard anyone that night because it would have been that night if anything like that to happen and I didn't see nobody that night, just Johnny and his wife was the only ones that I got to see that night, 'til Mr. and Mrs. Bain brought my daughter home later that night after they come up from Little Rock. They didn't stay, they just let her out and they went on. Well, they asked me, too, if I had a place to stay—if I didn't have a place to stay, why they'd take me back home with them. And I told them, no, that I would stay there because Johnny was going to leave and let us have this little house to live in 'til I got some of the boys up there after me, you see, and 'til I got some cleaning up done out there. I didn't want to just walk and leave everything. I thought I might find something that I needed to find and I'd stay there the next day and look through.

I: Well, now, when did you first hear how big the storm was?

R: Oh, let me see, the next day, the next morning in the paper, and the next morning—why—it began to get several—the news you know that—how many people was killed and injured, you know—and the news came out in the papers of different ones, down at Judsonia, Bald Knob, too. Some of her schoolmates' parents up at there—at Bald Knob got killed. At Bald Knob—what is his name? Oh, Mrs. A.—she got killed and Danny was in the hospital several days, I think he got his eye put out, didn't he? That is what you said, you heard? (Third party—I heard, but I don't know for sure.)

I: Where did you get your information?

R: Mr. Flynn. See, I get the Gazette and so does Mr. Flynn take the Gazette and the mail man come through that morning, you see. 'Course the houses was all gone and he didn't leave my paper so, see, my house was gone and he didn't see me—'course I was over here at Johnny's and he didn't know it. But he didn't leave my paper. And Mr. Flynn was out at his front, you know, when the mail man passed and the mail man come up and asked him—our mail box was all destroyed, you know, so he asked Mr. Flynn what he wanted to do with the mail and he said, "Just bring it up to the house and put it in my truck." His truck was sitting out there and he said—"'Til I get a mail box fixed." So he put his paper in the truck. Well, Mr. Flynn, he stayed down there with us, you know, too, that day, down at their little house—so they came on down there and they brought the paper down there, you know. Let me read it—I didn't get my paper that morning. So Monday morning I seen the mail man—I told him to have my paper stopped up there and I'd get it when I come back in. So that is what they done, so we read Mr. Flynn's paper 'til I got down here. That was the only way I got any word, you know—of anything—was just through the paper because there wasn't no one coming out there, you see—they was all going the other way, all going towards Searcy—because so much happened at Judsonia—the storm was so bad there, so much to take o' there and all, up the line, too, as far as that is concerned, but most everybody up the line—you know—up the highway there—there is Mr. and Mrs. I—they both got killed—they was our neighbors—lived a ways from us, and then that Mr.

and Mrs. C. lived right across from—down from them, just the next house—the highway went between the two houses—the house over here—two of them got killed, maybe three, I don't know whether the little boy got killed or not. But where is the little boy—he was (Third Party—no, it was a little girl.)—they had two, they had a little girl and a little boy, and the little girl was in at her mother's that night—she wasn't home. It was something—it never—I never did find out what happened to the little boy. They had a little boy about two or three years old, I don't know where—(Third party—I thought you heard)—No, I didn't—I never heard—or found out what. (Third party—they had a little boy three years old). They did, they—

I: Well, was there any time during the storm or after it—could you find out everything that you wanted to know?

R: Yes, there was.

I: What were some of the things you would like to know and couldn't find out about?

R: During the storm?

I: During and after?

R: Well, one thing, during the storm, after the storm was over, of course it wasn't anything that I knowed anything about during the storm, 'cause I didn't know anything myself 'til it was all over. 'Course after it was all over, why I—wanted to get the children word but I couldn't—there wasn't nobody that could get word, so I just happened to think to myself, "Well, I'll just wait 'til tomorrow, tomorrow is Saturday, and I'll just wait 'til tomorrow and if they don't get the word between now and then, why down here maybe I'll have some way to get them word. So of course my son then come down and he told me that he had notified all of them. Well, I knew he would, if I could ever get word to him, so I was—or would send him word—the one that came down here, but never did have no way to send him word—no way under the sun to get him word. But I figured he would get the news anyway, and he would be bright enough to get it in his head and come on up there. So he did, and he had been coming home every weekend, you know, staying all night with us, coming back Sunday afternoon. When he's here on the job he stays at the Y.M.C.A. here, that is where he rooms—'course he just eats out, you know. He is a single boy, so he come home every—most every week-end anyway and so I knew that he would be home then on Saturday, you see. And he would be up there and so he was. He came up there that Saturday afternoon and told me he had notified the rest of them to let them know that we was all right, safe, you know, that we didn't get killed. So they wouldn't be worried about it—some of them never did get the news—I even got letters from them—they still haven't heard...about it, after being notified through one of the boys. I don't know—somehow or another, he just didn't get the word some way. Mixed up some way.

I: Well, what were some of the stories going around?

R: Well, let me see. Well, I know that Mr. Flynn told me out of his own mouth that he lost 30 thousand dollars, in his--in his tornado destruction. Which I guess the man did because he lost all of his rent houses, see, and he lost his own home, and his barn, and his stock, and cattle, chickens, and everything. I guess the poor ole fellar did, 'course he was pretty well fixed--he wasn't like the rest of us--he had something to fall back on. Where we didn't, we didn't have anything....

I: Well, what was the most serious problem that the storm raised for you?

R: You mean that...?

I: The biggest problem?

R: The biggest problem I have? Well, the biggest problem I had was at the time then--was getting--going to a doctor the first night--that night, you know--because I was--suffering so and hurting so--had nothing to do--with--just didn't have nothing to take or nothing else...there wasn't a asprin--nobody could find a asprin--we couldn't get to the highway, and (Third party--didn't have any money) and didn't have a penny of money--didn't have any money to do anything with and I couldn't do nothing I knowed 'til I did get something to do with. So at that time of the month I didn't have a penny. And my son hadn't got word down here yet, too, and I hadn't got any work 'cause I had no way to get him work, but I knew, you know, I knew at the time that he would find it out you see, because it would be broadcasted everywhere, after the tornado struck. I figured that he'd get word without me sending him word but I thought he would be up there sooner than what he was. He said the reason he wasn't was because he heard them giving orders, you know, to stay off the highways, you know, stay off of 67 from Searcy to Bald Knob because they had so many wounded, you see. They were picking up and gathering up the dead--they couldn't--Little Rock was all--wasn't it Little Rock?--I thought it was--Searcy--Bald Knob--'course the tornado didn't hit Searcy, though. (Third party--Mamma, they had--)--I know they had a lot of traffic from Little Rock, you know.

I: Well now, who do you think did an especially good job after the tornado?

R: What?

I: Helping out?

R: Helping out, you mean? By passers was all I know.

I: Were there any people in the neighborhood that probably could have done more?

R: You mean that could have helped out--helped others more? Now, just let me see. Sure, there was a lot of people in the neighborhood, 'cause there was some of them, just a little ways from us, that I know didn't even help.

(Third party--"Who?") Well, Mr. C., he was--that the tornado didn't even hit. Well, Mr. C.--all them folks over there--they was just at the edge. Now, like the tornado came in here and just swept clean--everything in, right in here, same line as my house was on--just swept that clean, from way on down the road on through Bald Knob, all through there, and right over here Mr. Flynn's house set there--a big fine white two-story house; owns all this land and everything. Well, his house wasn't even touched. I think his barn--it set back about here--and I think his barn got a little shaked up in some way, but now it was the only place in there--its this man here and of course Mr. N. that lived down here at the highway after you leave the steel bridge--you come in on the highway 67. His house set right here. Well, all his front porch was tore off, and I think he had a cow crippled up in his barn--his barn tore up--his barn was swept away--but his house--that was funny how that strip there, all the rest of it around there--those are the only two places that I know--that were very close to the tornado--that was right in there that owned their own property, you know--and probably could assist some of the others (Third party--"Mr. and Mrs. N. couldn't 'cause they didn't have no way of doing it.") No, the N.'s didn't have no way, but he is financially set.

I: But you did say--

R: Yeah. Well, I don't know. I don't know. I couldn't say. I seen Mr. an. Mrs. N. that night talking to them--she was getting in the car where I was in this truck and asked me if I was all right, and I told her I was all right excepting I was just hurting awful bad right then and account of my hip being sore--'course she talked a few minutes, you know--asked me how I got hurt and all, so she was so enthused about their cow that was in the barn she couldn't hardly take time to talk with me at first, you know--she was wanting that cow awful bad--so we didn't talk to her but a few minutes--she just come up with me in the truck, you know--she's one of the neighbors so she went on and I never did see her again. Her son, I think, was there about then, and they went somewheres. 'Course they had their part of their housetop blowed off, and it let rain in, you know, and got their bedding wet and things like that--but it didn't blow their house away. The top come off on their front porch, but the rest of it was all there. But they didn't have any way--Mr. and Mrs. N.--didn't have no way theirself to help anyone at that time, not that night, they didn't. 'Course she give assistance--she told each and everyone that she talked to--I do remember that--that night--and she told Mr. R., the man that was just left there without a roof or anything over his head--just him and his little boy--and his wife and daughter was at the Searcy hospital--and he was there at the truck talking to us--he was my neighbor, too, and she told all of us, and told any of us, if we wanted to stay all night there in her house--we was welcome. She said there is no fire, understand, or no lights, and probably the bed clothes are wet, but she said at least you would be in the house--Mrs. N. told us that.

But she was the only one that I got to talk to during this time until the next day. That night, Mrs. N. and Mr. N. was the only ones. So I told Mr. R., he could come on up there and stay with us if he wanted to, in Johnny's place, you know--we was all together there--Johnny and his folks not got a bedroom, but I said, "I don't expect to go to bed myself." And in a way, we'd be in the dry, and have a fire, so Mr. Henderson went with somebody else. I remember seeing him get in a car and go somewhere but I believe he might have come back and

stayed at Mrs. N.'s that night because he had to stay somewhere anyway with his little boy. And I believe I did hear Mr. N. say—I heard her tell him and us, too, if we wanted to stay there we was welcome to stay there in the house, and she was the only one that I heard give assistance that night. Or help anybody because she was the only one that I was around. 'Course the next day there was several came there, other side of Newport, some men, and they offered to help any way they could, but...and they did help in cleaning up, you know. Hunting for stuff for people and helping them get their bedding, what they could, you know, if it was any account, they helped there, but they was from—back down in there somewhere. (Third party: "Murphy.")—Huh... Murphy. Back out there close somewhere. (Run out there and get that brown envelope—now wait a minute and I'll get it....)

I: Well, when were these pictures taken?

(Respondent shows pictures taken after tornado.)

R: I made these pictures Saturday after that Friday evening. These were made Saturday morning, the day after my son came up from Little Rock, along about three o'clock—in the evening I guess it was because he had the Kodak—he brought it with him, he thought there might be something we'd want to make a picture of so he brought it along with him—brought it up there. I was going to show—I thought this was the top of the limbs there where I was wedged in the fork, but that is not the tree, that is another one. That looks like somebody sitting right up there. It guess it is you. I don't know what that is—the limb sticking up on something. I had eight of them; I sent the others all to the other boys, you know.

I: Well, when did you first feel that the worst part was over—when the worst was over?

R: That was—when this cushion blew, that is when I come to myself, see, and I done left the house, you see—wasn't in that house any more, and when I looked up I seen the house was gone, and I could still see things a-blowing though, you see, and when I raised up, this cushion coming toward me as I—the divan—I had three cushions in the divan, and one of those cushions was coming towards me, so I just grabbed it, you know. I thought, well, that will help to protect me. So I just grabbed that cushion and throwed it over my head and stayed that way, I guess three or four minutes. And about that time then, it kinda quieted down and was over, you know. So I raised up and looked. I didn't know where I was at, but I did realize that this cushion was my cushion—I could tell it was, you see, that this cushion was a cushion out of my divan. And so I knew then by that that I wasn't very far from the house, you see, where the house was. And I just thought—how thankful—I was that I wasn't hurt, you know.

About that time then, I thought about my little boy. I thought of him and I begin hollering for him. And then he called me, but he couldn't hear me calling for him, see, but I could hear him—and he begin hollering, "Mother, are you all right?" or something like that, or "Where are you?" Or something like that. So I told him where I was at. I was up in the tree top there sitting in a tree top that had uprooted out of the front yard—just a tree that was out of my front

yard, done uprooted out of the front yard and I was up in the fore end of it, right at the forks, it was like this—that is what hurt my hip, you know, when I wedged down in that fork, why, my feet was laying on the ground like this, and I had on a pair of shoes something like them, only they were red. And the water was just a-pouring over my feet and legs, ole dirty water, just black, the water was, and I know I looked down and I could see—that water, you know, running over my feet and legs—and I couldn't get up, couldn't move—my hands was all I could move. You know, and I didn't know whether I was altogether or not, or whether—what had happened, 'til my son had come on up there—my little boy helped me get out of the tree top so—when I got up I couldn't walk. I thought this hip was broken, but he finally got me to the car, out to the truck—Johnny's, sitting out in front of Johnny's house. Johnny said for us to get in that—it was still then pouring down raining, when we left the tree where I found myself—this tree top that had blown down.

I: Well, what about the storm scared you the most?

R: Well, sir, the worst thing that scared me when the storm hit was when the—this—when I heard the noise in the kitchen. I knew then that the house was a-going 'cause I heared it cracking up, you see. I could hear, you see—these windows blew out, and I thought, you know, that my window wasn't in good and tight—I'd go back in there and put it back in. But when I looked into the kitchen and seen the—I had two windows, one on that side, one on this side—had a big long window on this side, and it had blown out and blowed clear across the cook stove, laying on top of the cook stove. Well, I knew that wind was strong, to have done that, you know. Well, I knew then that it was a tornado, that is what it was, because—about that time, when my son seen me go to this door, I thought I'd go in—I said, "Son, come here right quick—these windows blowed out." So he came on and pulled me back and said, "Don't you go in there." Well, he must have realized them, at that time, that it was a tornado, and so he grabbed this door and pulled me back and shut the door, and latched it—had a latch on the inside. He pulled me back and locked the door and said, "Don't you go in there—you stay out of there." And about that time I heard cracking—I heard the walls—I heard the room crack up—that was the worst—that was the worst feeling that I had during the whole time, because I knew when that happened that the house was a-going. You see, I knew we was all going. But I thought, the next would be the living room where I was at, and the next was the bedroom. Because I could hear the bed when he opened this door—why it was just like a—he opened the bedroom door—he thought he'd run in there and get him a coat, you know—after he seen the kitchen was a-going. And so I hollered, "Son, you stay out of that bedroom—don't you go in there," —something like that, you know. And so he opened the door—that is the last I seen of him. And I never did move—I just stood—I had a big chair—there—a large chair that goes to the divan you know—sitting in the corner of my house, right kinda not far from the front door, and I turned around and looked once at that big chair and I thought, I'd sit down there in that big chair and I thought, "No, I'll not sit down, either, and it might be blown away and no telling where it will go." Well, that chair was found in the hog pen...now that is where that chair went. If I had sit down in it, there is no telling where I would have went and in the hog pen—there was two great rocks, you know, it is rocky up there—two big rocks—this boy landed on one of these rocks. Now I think that is how come him to get his head cut—

it might have been cut on that--it might have been cut on barb wire 'cause there was barb wire around the top of the fence. And so when I was standing there in the middle of the room, I decided once I'd sit down in that chair, I was left along then by myself--my son wasn't with me anymore and I knew that he had done gone. Well, that was the worst feeling that I had, you know, was when I missed him, you see. I--I knew when he opened that door, it was the last of it, and I could hear the bedroom cracking, you know--you know you could just hear it cracking just like everything--just like--a building being tore down. Now that is just the way it sounded. And of course the next thing, this front door come in, it blowed open--and I thought I'd shut it. Well, that was the last thing I remember. Ah, when I started to shut the front door, 'course I seen these wine colored drapes up in the air, and I looked up, and when I looked up and seen them, why I seen the house--it just went and I just felt the vibration of leaving the floor, too, and going...now that is the last thing I remember--'til after it was all over. And, as I told you, this cushion--I kinda looked up, you know, to see where I was at--and this cushion was a-blowing toward me, and it still wasn't over or that cushion wouldn't have been sailing through the air. And so I grabbed that cushion though and the pillow out of the divan and throwed it over my shoulders, just throwed it back like this. And I had held to those limbs 'til the flesh from these fingernails had pulled through and they were all bleeding. You'd not believe that to look at them now but that is the way they were. I held so tight to those limbs and I didn't know I held that tight. But I don't even remember a-holding, but I had held so tight to those limbs that I was sitting there in the fork of that tree, so tight that I pulled the skin, I mean the flesh from under my fingers nails, I just pulled it loose there, and it was all black, but they got better now.

I: Well, did you find it harder to go about your regular work?

R: Oh, my, yes.

I: How was that?

R: Find it hard, you mean after...you mean after it was all over? After I got settled down here, 'course I didn't have anything and wasn't doing anything up there but just, you know, kinda picking up and straightening up...hunting up clothes, what I could find, and things like that. After I got down here, why I don't know, I just couldn't get back to myself. Like I was, you know--And I couldn't keep from thinking about it. 'Course naturally I think about the things that I lost, you know, things that I've had for years and would hardly part from at all any other way only through that, or fire. And of course I studied lots about that part when you get settled. Well, in other words, I've never been over my shock. I was shocked, so, I was just shocked, to death, 'til I just couldn't hardly seem like I just didn't know what it is all about--for a while.

I: Do you still hate to talk about it?

R: No. It doesn't bother me now, not now, but it did on the start--but you know--for a week or two, but doesn't now, but it did. Of course I realize that things

like that happen, nothing you can do about it, you know, best way is to forget about it. But of course on the start it was just all done so soon, you know, so sudden, and everything got rid of so quick, 'course it was kinda shocking, you know, to think about it. Then, too, and then another thing, I didn't think now, what a blessing it was, you know, that we wasn't killed. We was spared and we did have our lives even if we didn't have material things, we did have our lives, you see. That is something to be thankful for, of course--more so than material things are. 'Course we got other things to think back, so I studied lots about that and it was for a while seem like I didn't want to mention it--just didn't want it on my mind at all, you know, for a while, didn't even want to think anything about it, didn't want to think about it, and I get to thinking about it, and just simply almost get hysterical, you know, 'cause I--get to thinking about it--thinking how awful it was, and what I had to go through--with--there in those few minutes. They claim it just lasted 13 minutes, the whole thing, you know--seemed to me it was longer than that. But of course it might not have been. I know it was five-thirty when I looked at the clock. I had the clock sitting on the radio, and I looked at the clock when it was getting so bad--20 minutes after five--I never will forget--the time--it was when I looked at this clock and twenty minutes past five and it didn't seem like it was three minutes--till I heard those windows blow out of the kitchen, you know. And then of course the room went to cracking up and I could hear them busting and a-cracking and timber blowing here and yonder and everything. Oh, it was awful, the noise---

I: Well, what has helped you to keep going?

R: Huh?

I: What has helped you to keep going? Through this whole thing--what has helped you the most?

R: Oh, you mean, what has hoped me get away from it? Well, I guess just being with new people, is all I can think, you know. 'Course, ah--being so well pleased that we got this place so soon--you see those places--places are hard to find--if you really want to find, and then especially--'course I have two children, but they are teenagers, you see, and a lot of these places won't rent to people with children. And of course that worried me for a while, I was afraid we couldn't find a place on account of these two teenagers, half grown, they are old enough to know how to take care of a home and all, how to be careful and be quiet, and not be meddlesome and not bother anybody. Not like little folks, of course. So that worried me for a while, you know, before my son got the place. 'Course, I know, too, that we had no furniture, we'd have to get some kind of a furnished apartment, some way or another. And that kinda worried me, but after I got down here, and got, you know, mixing with the other people, the people here in Little Rock are really nice--they really have--I've even got letters from....welcome, you know, congratulations for being here, and all like that, but I don't suppose they realize that I was one of the tornado victims, you see. They don't know that because so many people that I've talked to that I've not even mentioned that--I've not brought that subject up, anymore than if I was just a newcomer here, see, and that is the way the letters are. But there is so many of them that have written me that just welcome me to the city. As a newcomer, you see. And they don't

realize that we were tornado victims, and lost everything we had. But still, with my son having this job, you know, and my son in the service helps me and by that we can get—kinda get by with our house rent and our living expenses 'til we can get something better. But still I'd rather—I don't know—sometimes I expect I guess I'll never try to own—this makes the third time that I have owned my household, you know, and everything—it seems like I want—then something happens.

I: How did it happen?

R: How it happened?

I: Yes.

R: Well, I just had it burned out, but I never had a tornado before—never was in a tornado before, but—just financial affairs, you know—as a widow, why I'd have to have to get rid of it, you see, and go somewhere else—it just seem like every time that I'd get on, get kinda up on the hill like and get started to where I thought we was just doing well, then, why something would come and knock it out and taken away from us someway or another, like that—that makes the third time I've had house furniture brought, new house furniture, good home, you know, to live in neatly and comfortably for me and the children,—something has happened every time. That—I'd have to get rid of it. 'Course this time it was taken from me, the other way, but before I had to sell out, you know, to get somewhere else.

I: Now, do you feel that you have been changed in any way because of all of this? Storm?

R: Yes, I—I do. I think it was all done for the good. I think we are better off, you know, in the way it was, because—at the time we lived up there, I was just there waiting, you know, 'til school was out and then I planned to go somewhere else because the children didn't like the situation. We was either gonna move to Bald Knob or somewhere in Texas, or down here. We had made that suggestions, you know, between us, but—that we wouldn't stay up there after school was out, and longer than she got through this agricultural project—have her chicken up to where you could sell them on the market and his pig fat enough to sell on the market. Then we were going to try to locate somewhere else. We wasn't going to stay there. Because we was away from all of my relatives, my folks, away from—just me and the two children—had no relatives up there whatever—none of my relatives up there—we didn't have any folks here at all. All my folks in Texas—all except this one boy that was working down here. So...

I: What do you plan to do now?

R: Well, the only thing that I can do, depend on now, is just here with this son, the oldest son. Well, he is not the oldest one either. He is, I—have two sets of children, married by two man, you know, and the boy that was here, is my baby boy by my first husband, Clarence, his name there—he is—and then these three children, these two that is with me and the one in the service is

by my last husband, Harry--and so one of them is in the service--the oldest boy--he is twenty-two, and then the other one is going on seventeen, H., you see, and this girl, she is the baby. And I don't know hardly what, but I imagine we will stay here, the only plans I had planned, is to try to stay here in Little Rock, somewhere you know--I have to stay somewhere where they can get work. You see, a place like that up there, there is no work to do after school is out, you know. There are berries on the farm, and all, it doesn't last very long--it is all over and gone and then you've got nothing to do. When it is all--the--depended on me and the children why, we've got to be somewhere, where they can try to find work. You know, all of us--'course it won't be long 'til she will be older and she can get better jobs, you see, than she could now.

I: What sort of things did you learn that would be helpful to you or to other people?

R: Let's see. Well, you see we wasn't warned of this at all. We wasn't warned of this tornado, all day long that--people were just going around, you know, just as happy as they ever was, not even thinking about anything like that happening...So anyway, they--we wasn't warned of this--it was all come on unexpected, you see. And if a person is not, well I tell you one thing--from now on if it was me, to watch the clouds and get away before I wait too long, like I did this time. 'Course if my son would have went with me, when I asked him to, we'd been over there to Johnny's house, but we would have been a little better off, what I had went anyway, you see, it wouldn't have done that no good. My belongings--'course I wasn't caring anything about that so--just so we was saved--but we would have been a little better off, we wouldn't have got hurt, skinned up, cut up like we was, if we were over there. But it--we didn't know anything--anyway, we wouldn't have known but that that house could have went just like ours, but then, it is just which ever way you'd have it. If we went over there, we'd been better off, but--a--maybe next time, he will listen--'course he was--a boy--a kid--a boy--and he didn't--just didn't fear those things like I did. I've seen some awful hard storms, and I've seen barns and out buildings go like that, but I never did see no house go but as far as the kids--'course he didn't realize, you know, that it was as much dangerous as it was--don't guess, 'till after it was all over. And he got the results of it, why then he did kinda sympathize with the people that is kinda afraid, you know. Lot of people from now on--if I live in a rural district anymore--there would be a storm house, I've have a storm house built. I mean a substantial storm house. I used to think it was awful for people to run out and get in a storm house every time a pink cloud come up, you know, well, you can get kinda fanatic about things like that, you know, they just make their home in a storm house. Well, I don't think that they should do that, I think they'd have plenty of time to go to the storm house if they have one, you know, after they watched the clouds for a while--if they will watch them a while for a spell, you know--watch what might come out of it, why then they would have plenty of time to do that. But lots of time those things happens at night, you see, in the night, when they are all asleep and don't know anything about it. Well, in a case of that, I don't know what you would do. I just don't--what would happen, probably you'd get blowed away or you probably would be wakened up--if you wakened up in time, you could go to the storm home. Be all right.

But if I should live in a rural district any more, that would be the first thing I'd do. I've learned that much out of it, that I would have a storm house made. I—I—decided after, I seen what I seen, what was going to happen that we'd be better off to stay right there in the house than it would be to start out running, you see, going somewhere. Because we might have got hurt or killed, you see, by doing that, because it was everything flying in the air. Now I never seen as much lumber in my life because it was from that big house of Mr. Flynn's and the big—the larger school house 40, it was a large building, and I never seen as much fine lumber throwed over a place in my life as it is up there over his little ole farm—man—it is—just lumber—lumber—lumber—boards painted white—you know, they are pine.

I: Well, after the tornado was over there, ah, how about food? Did you have enough to eat?

R: I didn't have anything—I had plenty of food in the house but it was all destroyed, plenty of it.

I: Well, I was just wondering....

R: Well, Johnny, he had a right smart food there, so he was just a day worker—he works for a timber company. 'Course he had enough food there, batches of coffee, flour and bacon, and eggs,—we ah—we brought eggs, my son, came up from Little Rock and brought us up some eggs, you know, and then we went to Bald Knob and find a bunch of groceries for us, see, after he got up there on a Saturday. He got up there on Saturday, why, he went to Bald Knob and got a bunch of groceries for me and the children, to keep us, 'til we came back. Well, then, Mr. B. went somewhere and got enough sandwich, either light bread, either mustard or mayonnaise, or something, to spread it. Well, he brought enough up there to feed, you know, all of them there on a sandwich and he came back and we made coffee so we had enough to do up there, food...you know, 'til we got home here, got here and got us some more groceries.

I: How about your drinking water?

R: Up there?

I: Uh huh.

R: Well, it was awful.

I: How do you mean?

R: Well, it was just well water, you know. Oh, and it was filthy. You see, the well, the top of it, was all broke off, and all this filth and stuff went in that well and the main well, where Mr. Flynn and at Mr. Flynn's home was a walnut tree broke down over it and you couldn't draw water out of there at all. And the only well that we had to get water out of—was the one that was in the barn lot, you know, and it had the tiling, see, it was a tile well. Well, it had the tiling broke off, and the pulley was broke, too, and tore away, you know, and blowed away, that you'd draw the water up with the well bucket,

and so you had to draw it, just let water down in—let the bucket down in there and the water was almost at the top of the well, though, you know, it was,—there had been so much rain or something just overflowed or something. I don't know what. Well, that is the kind of water we had to drink 'till we left there that day. 'Course we went there—this Saturday—Sunday, we left there Monday evening, Monday night—rather, we was there, Saturday, Sunday and Monday, three days. We stayed up there three days 'til we got down here.

I: Well, did you have to do anything to the water?

R: We didn't do anything to it, we couldn't. Couldn't—there wasn't nothing we could do to it. It could have been boiled or something like that, you know, sterlized—I mean boiled and put away but—it cleared up during the day—it cleared up, it was just a—the water you know—so much rain and stuff got out there, the top blowed off, you see, and naturally the water got filthy.

I: Ah, — the clothing you said you lost most of that?

R: Oh, we lost all of our clothing that was worth anything at all, and what we did pick up I tried to save, had that, you know—had paint enamel all over it, and—I think though—maybe I can take that out—I don't know that I can, but I thought I could get some gasoline and brush and probably take it out—some of the garments. But they were all torn up, you see. What—wasn't damaged of our clothing was caught on barb wire fences, you know, and on tree tops, pieces of tin, and just snagged and tore, buttons tore off things, it was awful. Tore out the material—oh, everything we picked up, our slips were scattered all over them woods, there, and tree tops—just strung up there—had torn half in two, princess slips, things like that. I don't know if the underwear and socks and things, nylon hose and things we lost, I found my nylon hose, hanging on a limb—thought they would be good and I'd walk up to get them, you know, take them off the limb—they'd just be pulled...I had six or seven pair that was gifts for Christmas, you know, that I had never worn—everyone of them was torn. I had a box of hose my sons had all sent me, and my daughter-in-laws for Christmas. I had a electric coffeemaker, it got destroyed. That is one thing I hated to lose. But that would have to go, too, same as anything else.

I: How has your health been now? Since the storm? Other than the injury?

R: Everthing, except a little nervous, is all. I still nervous—just the least noise—I just—it just goes all over me. Just the least little bit of unexpected noise, and ah, it just gets me all out of whack. Just for a minute, though, it don't last long, you know—just—it is just a kinda of a shock, I guess. As I said, for, oh, three or four days, or maybe a week, I was still, you know, just shocked so that I—it just seem like I couldn't get back to myself—it was something that...and I tried every way in the world to, you know—I just tried to forget about it. You see, and not think about it—things like that, so of course now, it doesn't bother me, I don't—it don't worry me no more because I've got kinda over it—the only thing that bothers me now—is just a little unexpected noise, or someone speaks and I don't know—the—are around and that causes me to get frustrated a little bit.

I: How is your appetite?

R: Fine, I can't——

I: The first day or two...

R: Huh?

I: The first....?

R: Oh, for four days I wouldn't eat a bite, I wouldn't eat for four days. I couldn't eat, didn't want nothing. Only thing I wanted was coffee. I just drank a cup of coffee now and then. But I could not eat. I just didn't have no appetite. My appetite was gone, from me,—I just didn't have no appetite. Couldn't eat anything.

I: How was the children's appetite?

R: Well, they was—their's was all right. 'Course she wasn't in the tornado. But the boy was—'course—I didn't notice any difference in him. (Third party: "He can eat any time.")

I: How about your sleeping?

R: Well, that was something else I couldn't do was sleep. I hadn't slept any...

I: 'Til when,—sleeping now, you mean?

R: Well no. I don't sleep good yet, and then all through the night, you see, I wake, through the night, 'cause I'm thinking about the—you know, I'm just afraid almost to go to sleep sometimes, thinking about the storm. There's been two or three nights that I've got some good rest, that is, went to bed and slept, but it was because I just, worried down, you know, I guess. I don't know what else. No, I'm fifty-four years old and that is the first time I ever went through anything like that. I—and then I had enough burden as it was, you know, getting through the world by myself, with these two children, and all the responsibility on me which it had been for ten years. I've had the responsibility. 'Course I have sons that helps me some, but they were out, of course, but they are married and have their own families, you know, I can't depend on them too much. I—outside of this son that is here. And—but they are good to help if I just get down and have to have help of course I—I couldn't depend on them now, 'cause I need too much, you see. You understand what I mean there?

I: Sure.

R: I, they could help a little but they couldn't help me enough.

I: Did you have any idea of what the tornado was going to be like? Or did it turn out different than what you expected?

R: Well, No, sir. I think it turned out just like I felt it—like it was going to that evening when—because I never had such a feeling in all my life, that is the reason I kept telling my son—my little—my son, to get prepared for it, that I really felt it in my bones, somehow, I just felt it, you know—I don't know why that people will have those feelings, but somehow or another I just felt like it was gonna be destroyed there, that very evening. And I didn't feel that way 'til after we had done ate supper. I was just as fine as I could be and I had worked all day. See, I had been a-working and cooking in a cafe in Bald Knob, W.'s cafe, and I had been working pretty hard up there and so on Saturday why I—I mean Friday, I was up off from working up there so I helped him to fix his chicken yard. He had to have some help, you know. He could not fix the wire by himself. Well, she was down here, she wasn't at house so—that is why that I had to get out and help him. So I worked hard all day, and—after I cleaned house that morning, got everything straightened up, I—polished and waxed the floors, mopped and cleaned and got my bedroom suite that morning, you know—delivered, got it all straightened up, got the room re-arranged, like I wanted, along about one o'clock. Then, why I went outside to help him, fixed his chicken, poultry yard. So I felt fine, though, 'til that after we done ate supper, and after we ate supper I begin to kinda notice the clouds, the way everything was looking so I got out in the back yard and stayed out there, I guess for five or ten minutes, just going and going around the house, you know, watching the—looking at the clouds—watching and looking at the cloud, watching it. And it was just as black as it could be, on top, like a very big long strip, just as black and all under it, it was just a beautiful grey. And, I don't know, and it—wasn't—didn't seem like it was twenty minutes after I had been out there and seen all that—the elements had done turned a golden color, just a yellow, you know, just like a ball of fire, now that is just the way it looked, just looked yellow, only it just seemed like it was something going like this in it. That is all I could see in the atmosphere.

I: Ah, well, just what did you expect would happen? Did you—when you thought you were going to be destroyed?

R: Well, I figured it would be a tornado. And I told my son, that is what I told my son, I said, "Son, we are just gone; it is a tornado, and I told you, I been trying to get you—let's go somewhere and you wouldn't do it." Well, he wouldn't say a word. He never said a word to me when I talked to him, you know, and so he tried to keep me out of that kitchen, you know. I was gonna go in there and put those windows back in when I know, too, that I better not because I—I started to go in there, then I thought to myself, "Well, I better not go in there" because that wind was awful strong to blow those out, you know, the windows out—like it was in there—and it blew them out and—I knew then that it was worse than I thought it was along in the beginning. So he shut the door, he said, "You stay out of there. Don't you go in that room." So about that time, we heard it cracking up to where, you know—the walls going, you see, and the roof and everything, and—a—

I: Why do you suppose it was that some of the houses were so hard it...?

R: Well, Sir. I just can't figure that out. I—unless—because, listen—they was—it was funny how some of the houses was hit, when the same outfit was coming

from the same direction and there was Mr. Flynn's house—up there. His—east bedroom wasn't touched and all of his other rooms—it was a two-story outfit—but all the other rooms, was all just completely destroyed, and left that one little corner room, at the end of the front porch. It went into his living room or this living room went in here, and there was a bedroom over there, on the same porch, you see. Yes, sir. Just different directions. I don't know if—must have just been a twister or something, you know, went through—well, they said there was two of them. They said there was two—and that was the reason why it had done so much destruction up there, you know, and (Third party: "No, they said it was the same one, but it came between one way and went back the other.") Was that the way it was?

I: Were there any other times when you were nervous or upset like you were just after the storm, or tornado?

R: Oh, No. No, I never ever been bothered with any kind of nervousness disease in no way, no shape—always had awful good nerves. And I've had to have good nerves to work in machinery and that is what—the kind of work I've done. When I was at Newport I worked at—the—a—Trimfoot Shoe Factory. You know, that is tedious work and then you had, you know, there is lots of noise there. You see, all those machines a-going. And they were electric machines at that. No, I've never—I had awful good nerves. I never had my nerves...break up in any way.

I: You said you had worked at the cafe there?

R: I was starting it, so I could take it up in the berry season for Mr. W. and there was about six women that had—work about two days a week, each week, you see. He had to give them all two days a week so they could be experienced, trained, you know, to work in the berry season, 'cause he has a large cafe up there and it takes lots of cooks and lots of help during berry season to feed all the people. And so I had got me a job up there and was gonna work up there when school was out and then after, I mean, through berry season, then until after school was out, and I planned, then, when the—

I: So that you had planned to go to work then?

R: Uh huh, I was going to work then at the cafe if I could stand the work. It was pretty hard on me. I—I—can't do any kind of work that I have to stand on my feet all day—light hours. 'Course I stood it there for a few days—a week or so when I started in. But I was gonna work there anyway 'til the processing plant started up, then I was gonna work there, you see. 'Cause I could do that kind of work and not hurt me. I can't work at anything that I have to be on my feet too much. 'Course I can be on my feet some, but if I get, you know, relief some, why I—I—I can make it all right through 8 hours here. But I can't just stay on my feet all day. Accordin' to physical injuries.

I: A lot of the things you didn't get to use at all there. How did you feel about losing them? The bedroom suite, lamp and everything?

R: I just—I can't figure out—except to forget I had them, I guess—about the only way—the only thing I can do is just forget about it. Just as though I

never had bought them. I don't suppose,—well won't have to pay for them 'cause Mr. X. told me I wouldn't—he said to forget about it. Of course, they was insured and he got his money out of it, of course—I don't get anything out of it—I lost what I did pay on it. Lost my part of it but he'll get his 'cause he had insurance—'cause I paid 60¢ above what I might on my outfit, you know, so he could, in case of a tornado or burn-out, he'd get his insurance, you see. He'd get an insurance. 'Course he had a big furniture store there in——and that's—I went to see him about it and he said to me, "Forget about it,"—not to worry about that, just to forget about it. Well, I won't have to be out anything and I won't have to pay for it—you know—finish paying what I didn't pay—you know, what I lacked paying on it—the bedroom suite.

I: What did you do when the lights went off?

R: They went off before the tornado had hit, and I guess it was a good thing they did. The lights went off and that's when it's dark and he couldn't see to get his shirt and—I mean coat—and it was only five o'clock, too, and why it was so dark I can't understand—unless it was just before the tornado hit, you see, it was so dark and the clouds were so black. I told you about it—they were so black they just looked like train smoke, just as black as they could be—light grey color, and I was standing out there in the yard and I thought to myself when I was looking at those clouds that that was a tornado cloud because I had read books about what kind of clouds that you could look to, look for—during a tornado. And I just thought to myself that that was just what it was and maybe once in a while you could see just a bit of lightning, like that, you know, up in those black clouds. It was in the northwest from my place where I was standing back in my yard—in the northwest, and you know that that switched around and got in the northeast and come on around to the southeast before it was over. It just went plumb on around—the whole thing—because from the way— (Third party-woman: "That's the way—the way it goes.") Yeah.

I: How did you feel there when you saw the boy coming back to you and when did you find out that he was hurt?

R: Well, I didn't find out that he had this cut place on him until he come to me and I seen the blood streaming down his face and when I seen the blood streaming down his face, I just said, "Sam, Are you hurt bad?" and he said, "No, I'm not hurt bad," and he said, "Get up and let's get out of this mess," and like that and so he handed me his hand to pull me—to get me up, you know, and he couldn't hardly get me out of there—I just couldn't walk and I couldn't help myself, you see, on account of this hip. I thought I broke my hip and it was hurting so bad when I come to myself there and of course it was just as black as a hat—an old black hat, all over my hip, run down on my body where I had been bruised. I didn't know but what my hip bones were broken or something, of course—after I got up and went to walking, I begin then to where I could walk and I decided it wasn't broke—my hip wasn't broke—and so when he come to me there and when I seen him coming to me I had to wait until he got to me. I could see him pretty good piece off from me, coming, but he had to circle around and get around to where there was no

tree tops, you know, to get around in there to me. And, so I thought how thankful that I should be that we were both spared and to be alive...Both of us went, too, when the house went.

I: How—I was wondering how Johnny got over to his folks. You said he run out of gas and—

R: This truck was a company truck, it wasn't his truck—it was the company truck, and he thought it had more gas than what it did, but when he had run around up and down the road there, you know, trying to get out somewhere to a doctor—to go to a doctor for both me and the boy—'cause Johnny said his head ought to be sewed up, you know—It was split so bad there it was cut in three corners from up here in his head, and it was raining so bad—of course he kept his handkerchief up there all the time—he had an handkerchief in his pocket so Johnny wanted to try to get away, you know, and me, too, to a doctor so he could get some first-aid treatment. And he had run up and down the road there trying to find a way out, of course, he had all of us with him and everytime we's go to a road thinking we'd get out that way why it would be piled up with telephone wires and poles and posts, you know, pieces of houses and everything else, and a lot of timber, tree tops, and we couldn't get through and it was the company's truck and he just worked that day and—(Third party - woman: "His brother came after him.") His brother? (Third party- woman: "To take him home.") Oh, yes, whenever—when he left to go home—when he went back to—his brother got worried, and his brother came down after him. But this big truck belonged to the company. He left it there and the man—another man who worked for the company—came over and got the truck and took it back over to where he lives somewhere, and the tornado hit them, too, and that's back out from Boldingville, the other way, south, south of the highway. So Johnny's brother came and got them and taken them up to his parents, you know, her parents.

I: You said a while ago that the highway was pretty crowded and they wouldn't let you go anywhere. Who was in charge of that and...

R: Well, see I— (Third party: "Police.") The polices they had—polices all up and down there, you know, keeping them off on account of—you see there was a lot of those east Texas motor freight—cars you know—you know those big old transfer motor things—there were about six or eight of them that stopped—you know, up there in front of the oasis, and they had to pull off on the curb-way, you know, and give the highway—you see, they couldn't go no further and had to stay there all night and had to just sit there. They ordered that done because there were so many ambulances, you know, going up and down, police cars and people just going back and forth to their relatives that got hurt in the storm, and so they wouldn't let anyone hardly get on the highway at all, unless it was just someone that was in an ambulance or something like that.

I: Were there others up there who weren't looking for their relatives or something like that?

R: There were a lot of—lot of—just a lot of sightseers. They stopped that. You know, people would come, you know and want to see what was going on and what

had happened, and they didn't even have no right to be there. Yea, there were a lot of those kind of people, that why I know they were ordered to stay off the highway—you see they had to—they had to take care of the wounded—and they couldn't do it with so many sightseers—they was in the way—I heard that over the radio, I believe—I mean I read some of it in the papers. And about what they had ordered done, you know, on account of people being like that.

I: Is there any way that you think it might have been handled better?

R: Well, I don't know. I just couldn't take care of that situation. For my part—because I wouldn't have known how to do it even if I'd been put over there to've done it. It's just been such a turmoil of ups and downs and people going here and yonder until I wouldn't have known just which way to direct them or told them because I don't know whether it could have been handled any better or not—I don't—might—have because you just don't realize how much you, you know—excitement there was at a time like that and I guess it must have been took care of the best it could be and I guess it was best not to have so many people on the highway at a time like this, you see, because you know the ambulances had to get to the wounded and the ambulances—they had to get to the dead—there was a lot of people dead—they had to take care of the dead. They even took care of the dead 'fore they took care of the wounded. (Third party- woman: "No, the wounded first.") Well, I mean—was the wounded before the dead, was that the way it was? (Third party—woman: "They piled up the dead.") They—yea, that's right—it was the wounded that they was taking down and the ones that were dead—they—ones that had got killed, they—put them in places in order to come back and pick up, after they got the wounded picked up—that's the way it was.

I: How did you feel when you couldn't get any medical treatment?

R: Well, I just didn't realize that—that it was anybody's fault—anybody's fault. I didn't feel like it was anyone's fault that I had got no medical aid because like it was I did feel this way—that I wish that there had been some way for us to get to the highway, or got some way, you know, so we could have got some—some kind of aid, but after I seen—after I went to the highway and seen there was so many people on the highway that it was best, I guess, that I didn't try, too; then several told me, you know, that the doctors were out at Bald Knob and Searcy, they was down there, and the hospital was just crowded so full you could hardly get in. I felt like I was better off to stayed where I was and rested, you know, than to have been in a place like that, you know, where it was so crowded and I just felt like—to myself—that if I could take care of my ownself I would be better off than if I tried to go—now that's the way I felt about it. It's really my feelings after I seen—you know—how the situation was—the highway was so crowded then I went to the highway and we sit there in the truck for about two hours and one-half or three, and it was just awful the way they traveled the highway, the way they was—they just running up and down every second, just all the time, just constantly all night long, and I just felt like—to myself that we was better off where we was and not being disturbed and try to take care of the wounded

ourselves as to try to went in the shape we were in. I don't know what my son put on, he never did have a shirt on 'til after—oh, yes, Johnny gave him one of his shirts, that's the way it was—when we got over his house and Johnny went and got him one of his khaki shirts and my son put it on and some kind of a coat—a wrap—Miss B. she had a blue jacket, I think—she went to this bedroom that didn't get destroyed and all of her clothes happened to b- in that bedroom and they had a clock in there with all their valuable papers in it, and it didn't get blown away. They was all just like they was. Well, all of mine—everything I had—all of my rooms, every one of them, was destroyed and every valuable thing I had was destroyed. Well, I had some papers and things, I kept for years, you know, during my married life and had developed them and I didn't want a lot of them—some of my licenses—one or two of my licenses got gone and I think I seen a little box I had in there the other day that I had with one paper—enveloped in it that I didn't want it to get lost, but all my pictures, every picture that I ever owned—that I treasured right smart—every one of them got lost—gone, of course. I might be able to find some of the stuff if I go back there but I guess it would be ruined, you know—wet, everything was wet and what few pictures I got and what few papers I found—they're birth certificates—I just lucky enough to find the two children's birth certificates. I just got last year—gave $1.00 apiece for them, sent down there and got 'em and I was just lucky enough to get their birth certificates. I happened to look down and seen bunch of envelopes lying there, something like this, you know, just envelopes, and I reached down and picked them up and it was some old envelopes and I thought, "Well, that's the size of the box that I had some other things," so I just stopped down and picked them up and the birth certificates was in the long envelope like that, and so I was just lucky enough to find them birth certificates so I got both my birth certificates. That was them in that box.

I: Well, as you look back now, what was the worst part of the storm for you?

R: The worst part?

I: The worst part.

R: Well, I think the worst part that happened to me was after it was all over and things that I ought—and everything that I had was destroyed. Of course, the worst part was facing what I had to go through with—knowing that I was going to lea-e there—through that tornado. Now I knew that I was going out that way, I knew that this house was a-going and I thought that we was going to have to go, and I just didn't know whether we'd be spared or go later. Now I just felt like—now I felt like that I was eternity bound. That was the thought, now that was the kind of feeling I had. Of course, I done the only thing I could do—was pray, and I just said, "God have mercy on me and this boy." That was the last thing I said. Last thing I remember saying. But that was the worst, the very worst thing that could have happened to me during the time, at this hour, thirty minutes or whatever it was, was knowing that—you know—that it was a-going to take us. I knew by it taking that rose away from there, one by one, like it was taking them, surely undoubtedly we'd go, too, and of course I just knew that was what would be next, and sure enough, it was.

I: How about the community life. How do you feel that it's been changed?

R: Oh, it's been changed something terrible. It'd just be awful, because there's gonna be a lot of the people that was there that won't be there any more and they'll never be there any more, and there's a lot of people that was there and get away from there that won't want to live there—I've—any more—heard them say that they won't live there any more, and a lot of people that lived there, of course, it's just like Mr. Flynn told me that he never would—of course—he said he didn't have much longer to live as it was—he's 71 years old—70 some odd—but he said that it will take him the rest of his days—of his life—to get that place back and cleaned up and back like it was before this all happened. Yes—it's gonna be—and I don't know how in the world they're going to clean up that mess. Now there, over on the side that I lived on, there were three houses all in a row. And all three of them left. All three of them just cleaned up just like that. Just like that place there, that's my place, and so anyway that was in his pasture, too, he had pastures—all that's in here, that's his pasture and it's just got this little junk all over it. It's just all over that pasture and all this is his underbrush was in his pasture. It's all swept down clean. There's just everything in the world all over that pasture, house junk, you know, iron bedsteads, and wooden bedsteads and springs, chairs and pieces of furniture, and radios, and irons that were blown there—it wasn't our place—different electric irons that was blowed there, from different places. I just let them lay there. Of course, I guess they're ruined anyway, cords broken on them, you know, and things. No, I don't—it'll not be the same community I know that much, because we had our church house there, we used the good school, that was consolidated, you know, we used it to have services in and Sunday School, and we had about four rooms that we had our classes in—you see, it was a large school house, and we could have different classes and things and that's all gone. That'll not be there no more, and they claim that they're going to build a new church up there for that community. It may be, if the government might go ahead or the state and fix that up and it might be in better shape, you know, later on, than it was in the start—you can't never tell 'bout those things—it might be if they go in there and build a new church and they say the government going to build a new school house for Bald Knob, that's what some of the children been writing my children—some of their schoolmates, is going to have a new school house.

I: How about yourself, do you feel that you have been changed in any way?

R: Well, no. I don't feel that I've been changed any, only in a way, I just feel like it helped get me away quicker, that's the only thing. I just got away from there a whole lot quicker and had then probably better opportunities by being away from there now than I would later on. It helped me in that way.

I: Is there anything that you do differently as a result of this storm?

R: Yes, there's lots of thing I do differently.

I: How's that?

R: In my financial affairs, and the way of our living, everyday living, and just a lot of things that I can see now that would help that I think would be a help to us.

I: How's that?

R: Another thing. It helps the children to realize that there are things that can help them, that is above and superior to human ability, too, that these things can happen to destroy what man can't destroy. Lots of things there to think about—think about those things, and makes a big difference in your life, if you just look at it that way.

I: How about the people who were sort of taking the lead in the rescue work? Who were some of those people in your community?

R: I don't know of anybody, there was no one out there in any rescue work while I was there.

I: Oh, I see.

R: I left there on Monday and of course I was at Bald Knob Monday afternoon, until sometime about three o'clock in the evening, and got ready to come on down here that night. And I never got to see anybody, only just our neighbors that were out there, only Mr. Flynn, you know, children and his folks that came from Georgia and from some other places. They came there to see about the old folks, nobody was around there when I left. I don't know who was going to take care of that part of it up there. I don't know whether they was going to set the people back there to live, or not. Now there's some of those—the people up there that own the properties—own their land, you know, their homes, that they claim that the government was going to give them loans to build back, but see, I didn't own anything, I was just a renter. I just rented by the month, paid Mr. Flynn— so much per month for the house rent and I didn't have any outside property of anything.

I: Is there anything else that we haven't talked about that you can think of in connection with the storm that might be of help in the future?

R: Well, I just don't know. I don't believe but I have explained about all that I can think of at the time.

Appendix A-2

The respondent is a man 42 years old, married, has two children, and is a salesman. He lives in Jadsonia, which suffered extremely heavy damage, and is familiar with all the surrounding towns in the area, because of his occupation. He presents a detailed panorama of results of the storm.

The respondent was working in Searcy when he saw the storm clouds gathering. He tried to call home and found the circuit dead. He drove back home going through the fields at many points to avoid the wreckage on the highway. He found his house completely leveled, but soon learned that his wife and children had gone to the neighbor's house during the storm and were not injured. He located them and then worked all that night and the next day helping to dig people out of the rubble.

Case 2-1

I: Well, just tell me your story of what happened in the storm, any place you want to start.

R: Well, just to begin with, about March the 10th or along there, there was an article came out in the Arkansas Gazette about tornadoes would hit Arkansas--so I was getting ready to go on a three day trip see, and my wife brought the paper in and she said "Well, boss, we're going to have tornadoes in Arkansas"--so during the conversation at the breakfast table why, I just casually asked what would you do if the tornado came up and me gone and what would I do if one came up and you here. Just casual conversation see, regular breakfast table conversation, so we really discussed it--what to do. The place where we used to live had a storm cellar and after our little talk there, well, we discussed how the clouds--I've had a little experience with tornadoes, been in Heber Springs in 1937 when that one came up there, and we lived in Clay County when they had a small tornado there, however, nothing happened to my family or to me--but I told how the clouds looked and told how the winds came up and the different lights that come along following these storms or just before them and the calm that happens once in a while, so then I said the first thing, if you have time or if you hear a tornado coming, if it's in the daytime or even at night, if you hear a roaring or winds blowing or its raining real hard and you suspicion just the least bit that it is a tornado, don't take a chance, go to the storm cellar or call Mrs. I. and ask her what she thinks about it. Mrs. I. had been in a tornado in Heber Springs in, I believe, 1926 or somewhere along there. However, they weren't blown away but they had a lot of experience and they just naturally pass those things on see--well, now, so when this thing happened I was working here in Searcy and it was about five-twenty it looked awfully bad and a fellow or two on the street that I knew discussed the storm, why then one came out of the store and he says "Hey Roberts" he said "there's been a tornado in Hickory, Arkansas." I said "Sure enough, it looks awfully bad over there--there's a strong wind--those clouds are boiling" and so after a five or ten minute conversation why--oh, it wasn't that long--why I said "I believe I'll call home, it looks awfully bad." So I stepped in to call home and the operator told me that the circuit was dead, she couldn't get through. Well, right at that time, I suspicioned them, although I didn't see the cloud going to the Southwest, I believe it was--or southeast--from here. I didn't see that part, I saw the part Northwest and I just had a feeling that there had been a tornado, sure enough, then because it rained real hard and then it turned a kind of a--I wouldn't hardly know how to call the color of the sky, but anyway, I would say a yellowish-green--and as I drove out that way I saw the evidence of course. Then I knew something had happened somewhere and trees and lines were down all over the highway and by the time I got there I would venture to say that it was about between five and ten minutes, not anymore than that, people hadn't hardly gotten out of the storm. Well, I didn't lose my

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"I" stands for the remarks of the interviewer.
"R" stands for the remarks of the respondent.

R: nerve or anything like that. Of course, there was a feeling of anxiety there--what happened to your folks--and I went in and just as I got there people was beginning to crawl out and I helped several. I ran to my house and my house was blown completely away ... I called and I looked around to see if I could see anything and I couldn't. So then I ran to this house where I told my wife to come and some girl came up and told me that they were all right and not hurt and they had gone towards the Methodist Church and evidently she did look out the back door or had a feeling that this storm was coming and that's the reason she went over there see, and I found them later on and they weren't hurt and they told me to go right ahead and help to get people out. So I worked all that night and the next day and finally caught a few winks of sleep in-between and still worked until Monday morning. On my wife's part, why I asked her about the storm, I asked her if she was scared when she heard all this coming, she said, well, she didn't have time to get scared, that all she could think about was the safety of the children and her first thought was to call Mrs. I. and ask her if she didn't think it was going to storm and Mrs. I. looked out the door and said "yes, come on over, I believe it is going to storm, it looks awfully bad." Well, the time they got to the house and went through the kitchen--or through the house--to the kitchen where these people were sitting down and eating--why, they barely had time to grab their coats and start for the storm cellar for by that time it had already reached there--had blown in the back kitchen windows and, in other words, things were beginning to fly. So Mildred said that her first thought was--go to the Northeast part of the house as the storm was coming from the Southern direction or Southwest direction according to the way the house had set and I asked her "Well, why did you think to go to the other part of the house?" She said "Well, after our discussion I knew I couldn't go outside and I had to get as far away from the fallen part of it as I could," so she ran to this room and threw the children--or got the children on the floor next to the inside wall and got down herself. Mr. and Mrs. I.--I don't know what part of the house they were in--but they also got next to the inside wall. Mr. I. hollering for everybody to get on the floor next to a chair or next to a couch or something like that, and the other people lived in the other side of the house, why, they stayed in the center room next to this inside wall. You'd have to see the place to appreciate what happened, but anyway, it blew away the back part of the house, it also blew down a large tree and it caught this timber--or rather it held the house from blowing away completely--well, these walls fell in a solid piece and there was furniture, or I believe Mildred said a heavy chair such as this one here--broke the fall of that wall although it did pin the children in there. I don't know who got them out; some say that she got them out herself--listed the wall off--otherwise I don't know but anyhow they did get out without a scratch.

I: Going back to the moment--to the time when you made the phone call--why did you make that phone call?

R: Well, things looked so bad and the way this wind was traveling--it was traveling towards Kensett and Judsonia--and I suspected, the way these clouds were boiling--it was more or less like smoke coming out of a train and a cross-wind hit it and made these clouds all boil see. I couldn't see a twister or anything like some people describe a funnel shape cloud, I couldn't see that, but the way these clouds were boiling around in the

R: sky, why I suspected that there was a tornado behind it or with it and so I felt that I should call home and to see if anything had happened. After all, it had already gone back of Searcy, see, and I just had that feeling that there was a storm and that's how come I called. Then, on the other hand, I thought maybe I could tell them to get over to the storm cellar if it hadn't happened, that's why I made that call.

I: What did the operator tell you?

R: The operator told me that the circuits were closed. In other words, it had already hit them lines between here and Searcy by the time I called and now to be exact--they have parking meters here in this town and at five-twenty I put a nickel and two pennies in this parking meter to time myself see, to get through by six o'clock--and by that time a fellow came out of the store and was talking to me just for a minute and mentioned this Dierks storm. Well, I looked at my watch the second time--then it was about five-twenty-five--then between five-twenty-five and five-thirty is when I--we watched these clouds and then I stepped in and made the call. And the operator told me she couldn't get a line through--she'd try again--well, I didn't give her a chance to try again, I just jumped in my car and lit out because something told me that there had been a storm, just acted on an impulse more or less.

I: How did you feel when she said that the lines were out?

R: Well, just--I wasn't scared--but I had a feeling that something had happened. How that feeling comes to you I don't know, but it did, and just during the afternoon I had been a little uneasy the way the clouds were looking and had been so warm all afternoon, just sultry and that's the kind of weather that we have storms in when it gets real hot and sultry and begins to cloud up and then turns cool why, you can kind of watch out for something to come. Sometimes those cool winds move in fast and when they do a lot of times, if there's quite a bit of wind, it does cause a storm.

I: Well, then you got into your car?

R: That's right.

I: Where did you go?

R: Well, when I got in my car I went straight out the highway for Judsonia and the farther out that way I got the worse it was. Timber trees down, houses gone, the radio tower was gone, highlines across the highway, cars in the ditch--some in the ditch--some were still on the highway and people were--you know how a wreck is when it happens on the highway all these cars pile up in just a matter of a few minutes--well, evidently these cars were between Judsonia and the I out here and between Searcy and the I they piled up all over. However, I managed to get right on through.

I: You said they were piled up?

R: Well, that is, they were in a traffic jam more or less--you know, one behind the other--no passing--someone pulled out of the way and let me get through. In other words, they were trying to get a lane of traffic going so the highway wouldn't be clogged up. That must have been two--three minutes after the storm happened possibly.

I: Then you drove where? To Judsonia?

R: Well, I drove from the intersection below Searcy here to the intersection where the highway goes into Judsonia. Well, the lines and the poles were across the highway there so I couldn't get through. I could see all this debris and wreckage and people out there and I drove up to the Northeast end of Judsonia where the trunk line comes in from the main highway there. Well, the same thing was up there, however, I managed to drive my car through a ditch and through the brush, in other words, off the highway a little ways and get through and parked my car in front of the high school building and ran on down in there and there was several other cars in there before me but not many. Possibly these were coming in from the other end of the highway.

I: Where did you walk to?

R: Well, I left my car in front of the high school and ran for my house--that would have been about a block and one-half--and people were beginning to crawl out of the wreckage or those that were out were beginning to walk the streets and they were more or less in a state of shock. It was deathly quiet, no one was making any sounds, no one was talking, just walking around. Well, I went on over to the house--where the house was--because I could see from where I parked my car all those houses were gone. It was easy to see my house was gone. Of course, you have a little fear of what happened and I did have when I couldn't find them. I knew they had gone some other place of safety probably or maybe they were blown away and I looked through all this wreckage and couldn't find them and then I went to this house like I told you.

I: Can you describe in some detail what you did when you got to your house there the first time?

R: Well, my house was--it was about three walls piled on trees there. In other words, the outside wall and the inside wall and the southern part of the house was completely gone, the front room was gone, the bedroom was gone, the bathroom and the back bedroom was gone. The northeast corner of my house--there was four big walnut trees by the side of the house, oh, I'd say maybe four feet from it--and those trees were blown down with the exception of one, and these walls--those two walls--were caught on that tree and some pieces--odds and ends of furniture and the stove. I knew the two rooms where my people were likely to be and, of course, when I got there the first thing I did was lift up this wall and see if they were under there and then they wasn't there so I looked around the street and out in the yard and across the street. There still was no sign of them, so I just

R: happened to remember that they said they would always go over there in case something happened if they had time--to this I's house I was telling you about where the storm cellar was. I couldn't see anyone else, the neighbors, they had all--they were either under the wreckage or out in the fields or in the area there or possibly had already gone. But I ran to this house and it was, oh, a matter of 150-200 yards, and there the people were pulling the wreckage up and they told me my folks was already gotten out and gone. Well, when they told me they were all right, why that little feeling that you have in there, in other words, you're scared that something has happened, disappeared and the next thing that I had in mind was to dive in and help get those people out. I did go on down and find my wife and two children to find out if they really were all right. I didn't take anybody's word for it.

I: Well, once you found your wife and children, then what did you do?

R: Well, I asked them if they would be all right and they told me they would be--that they weren't hurt and they weren't scared. The children--the little boy was scared, he was badly scared, although he had kind of calmed down and they had gone to sleep where this house was and my wife--I was really surprised how calm she was--she said "You get out of here and go help those people, we'll be all right," well, that's what I did. I left them there--I never did see them anymore until the next morning, early the next morning. As far as people in the town, they seemed to come to themselves and realized that they had to do something and get those people out. Well, one of the first persons that I helped get out of the street was a customer of mine--ran a grocery store there--he was pretty badly hurt and it begin to rain awfully hard too and then we went from building to building where we thought people were or they told us that there was some in there and begin to dig around in the rubble but the strange thing about this kind of wreckage there wasn't--there they told us there was a lot of people--they had all gotten out. Nobody was hurt. They had either gotten under the table or some of them had run to the back of the building when the windows blew in and others told me later on that they lay on the floor of these wood buildings but now those concrete buildings--it beats me how they got out--I don't know and they don't either. Those boys in the pool hall, some of them crawled under the pool tables you know. That's about my story.

I: Well, see if you can reconstruct this a little more. When you found your wife and children, where did you go next?

R: Well, I went on down to the center of the town where the bus station and the two different pool halls, barber shop and two grocery stores--that's where most of the people seemed to be. In the first block there, why that was pretty well taken up--spectators and people too trying to get those people out of the cafe, you know, that had caved in. And across the street, well, this Johnny Allen and his people were in there and they were digging them out. There was enough people that you kind of had to go in groups, in other words, there was enough people at Johnny Allen's store to get him out. There was enough people at these cafes--there wasn't standing room hardly and rubble and people standing on top of it and more or

R: less gawking around, some of them trying to help and some didn't know what to do so I went on up to Roger's store and Peck's and I found Mr. and Mrs. Peck--they were out in the middle of the street--they were all right but more or less shocked and then the pool hall there, the boys got out there and some of those were standing out. I think there was one or two pinned in and we dug around in the bricks trying to get those out. And they told us Mr. Everitt was in his wreckage. Well, we never did find him until the next morning and I wasn't in on it when they did find him, but he was in the front part of the store and they couldn't find any trace of him there. I don't know, I think they found him in the back of the store under some of the wreckage. Some of the boys found a set of false teeth that they said was his and so that kind of spurred the deal on just a little bit see. Well, early in the morning there, we got in groups in five-six or eight and fellows that knew each other; we begin to make a house to house search. In other words, just systematic search on down the blocks so far where they told us everybody got out all right and then we went to another block and did the same thing. By that time all these people from Searcy were coming in there and people that hadn't been hurt begin to run in town and they got more all the time and some were in there from Kensett and possibly they searched the same place that we did but anyway, they were pretty well grouped up to get people out. As far as getting cars or ambulances in and out, they didn't have much chance there except what was picked up bodily by a group of men and thrown out of the way and those boys drove the ambulances over the debris, etc., to get in there, but I'd say by eleven o'clock why there was quite a group of people in there to help out and we began to get ambulances from all--Heber Springs, Searcy, and all those places--all neighboring towns--Augusta was one--I think they even came in here from Batesville and later on that night why the National Guard came in. The Arkansas Power and Light Company was really on the job early and the Salvation Army and the Red Cross moved in that night--some of the units came in the next morning. Well, then I retired for about two-three hours--enough to get a little something to eat and rest and then start all over again with a group of fellows. On Saturday afternoon things was pretty well squared away as far as rescue work was concerned and I begin to slack off and look around my house to see what I had left. That's about all I can remember from the time this happened.

I: Well, through the night then what kind of work did you do?

R: Well, all that night--up until early in the morning--we searched this wreckage, the main two blocks downtown on up past the park community house to my house and then the three houses across from my house and then we went back on the next block towards the south end of town and we searched those places, but there would be groups of men come up. We've found those people, they're all right--or there was a few hurt here--we've already got those. It just kind of died away and then you began to congregate around the Church you know, on different places to see what else you could do, but just taken at a whole why these people in the town of Judsonia they got ahold of themselves pretty well. They recovered from the shock and realized something had to be done and then a little group of them would say--well, let's go

R: together--let's go look at this place see what we can find there, if there's anyone left--but after they got the biggest part of them out, why they began to go back to their own houses. My neighbors over there, they was one hurt and the others wasn't hurt, they came over and helped me look under the walls to see if I could get a few clothing out or what have you and I did get a few clothes--not very many--and then I went with two of them to their place and helped them get an item or two out. Everybody was wringing wet and they needed something on, you know, and then later on why we retired back to the Methodist Church for a little bite to eat or coffee. Somebody'd rush in and tell us so-and-so was missing or their house was blown away over in a new area. Well, we'd all go over there--that is a group of us would, I wouldn't say all of them--and search there but sometimes we'd find them standing around and other times maybe they had already gone to some of their folks' house or some of their people had come in after them and taken them out so there was quite a bit of confusion that way--you didn't know whether they were blown away or missing or what really happened. Actually, why I think that caused a lot of confusion, because they left to go to someone else's house or go with some of their people and when we got there or a group of searchers got there, why, they wondered what happened--nobody around, see. I think in a storm like that or most any disaster--of course, sometimes they can't do it--they need to establish, say in two blocks or three blocks have a center or have someone there to kind of, more or less, check on who's gone out and who hasn't. All of this--these people missing or leaving with relatives create quite a bit of excitement and confusion too--they didn't know what happened to them. Now, my work all ended there about--as far as rescue work was concerned--by Saturday. The next afternoon and Sunday, why, I was searching for clothes and to see what I had left and I stayed around my place up there to keep this pilfering from going on. There was quite a bit of that going on--outsiders were beginning to come in.

I: You said you got a couple of hours sleep and rest that night--where did you go?

R: Well, there was a house in the southern part of the town there behind this produce house that wasn't damaged too bad and those people--they're not kin to me, but my brother-in-law married into the family and it was a large house and they had temporary places there for people to come in and rest and his house was blown away too--that is the roof was blown away--so they carried a few mattresses and beds over there just to make temporary rest places. When I got there, there was just the neighbors there and my family was there--I probably looked kind of weather-beaten and they had a place fixed for me to rest--I guess it was two-three hours maybe--that's about all. Then you get up and go out again, you see, it's still on your mind and all and you can't rest very well and then you go out and work again and look around and try to help out and periodically I'd come back and check on the folks and see if they were all right. Finally, I just stayed down there for the rest of Sunday anyway.

I: Now, where did you go Saturday night?

R: Well, Saturday night I worked all night. I didn't rest any Saturday night. No, Saturday night I stayed there. You see, this happened Friday and we worked all night Friday night up until the early morning and I came in to get a bite to eat and a cup of coffee or two down to the Methodist Church. By that time they had already set this place up and Saturday night--I'm a little confused--I stayed there and then got out again Sunday morning see. So actually I said I worked all night Saturday night--I probably didn't work all night, I really don't know just how long I did work but as far as sleep is concerned I didn't get very much. Let's see, we stayed there--I carried my folks home to our cabin up in Little Rock--I don't know whether it was Sunday night or Monday morning--I can't think. Must have been Sunday night.

I: Well, where did you stay after that?

R: I stayed in Little Rock for a couple of days and then came on back. In other words, I'd come up here and do what I could during the daytime and go back to Little Rock at night for almost a week. On Monday I came back to get what few clothes I had piled under the walls up there and I worked around and helped out a few people, you know, and then Monday night I went back to Little Rock. Then, I stayed until, I believe it was Wednesday we came back up here. We, more or less, came back to attend funerals, that's what it was, there was quite a few funerals Wednesday. That was the end of my time up there, the rest of the time I'd been in Little Rock and over here working.

I: Did any of your family get hurt in any way?

R: Not to require medical attention. They just had bruises and those bruises didn't show up for a day or so--very minor.

I: They didn't need medical attention?

R: No, they needed no medical attention at all. They walked out under their own power and other than just a little bit nervous and being scared--that is, especially the children, the little girl wasn't scared but the boy was--that was the end of it.

I: When they were scared--how were they acting?

R: He had a fear of a storm coming back again--after all, it did thunder and lightning early Saturday morning, you know, and it rained pretty heavily and he was uneasy about the storm--he kept asking about it, but I think its all over--it happened so quick that he really didn't know what took place. The only thing he did was to do what his mother told him--he didn't break loose and run or anything like that--he did just exactly as he was told--the same as if he had been drilled in it for some time, but he hadn't been drilled in--he was scared--that's the reason.

I: Do you remember how he was acting when you first saw him?

Case 2-9

R: Well, let's see--when I got down to the house the children's clothes were wet and they had put them to bed--that is covered them up. They weren't asleep and when he heard me come in why he asked me if I was all right--he wanted to know where I was when the storm happened and then he asked me if I was all right. But he was over his fright by the time I got there. However, that early Saturday morning when all this thunder and lightning happened--it rained again--why he stayed close by me and kept asking me was it going to storm again, you know. Of course, I told him to ease his nerves that that was just a thunder storm or an electrical storm--after results of the storm--and not be scared, that possibly it wouldn't happen again. I had to ease him off some way, you know, but I don't know of a storm ever striking one time and then in the next morning striking in the same place. It might happen but I never have heard of it so I told him the storm wouldn't hit there again, it was all over with, that there would be a lot of rain follow it--kind of explained it to him. Well, he seemed to accept what I told him; he was calm the rest of the time. Anytime he was around me--I don't know how he acted around his mother--he might have been putting up a brave front around me. Most boys do that, you know, around their dad.

I: How has he acted since then?

R: Why, since then he is not uneasy during the day and if the day is sunshiny, pleasant like today--no clouds--he doesn't worry but if it's raining and the clouds begin to gather and it gets windy, he begins to get concerned. He begins to ask questions and he stays around in the house or near some of us. This last Friday--last week-end--we had pretty good wind, pretty good thunder storm. He got up the same time I did and looked out the window, and I asked him I said "Johnny, are you scared; are you worried about a storm" I said "There's not going to be a storm." He says "Well, dad, I'm not worried as long as I can see those clouds; see what's going on, but when I get scared is at night." I said "Well, do you think you're ever going to get over it?" He says "Well, I'm not as scared as I was." I said, in my terms, why I'm concerned about it; what'll happen when these clouds gather. I had explained to him since then several different times--I'd get him off by himself and talk to him how these storms come up and told him that they were not very frequent or anything like that and he shouldn't be scared, that being scared possibly might get him hurt some time.

I: You were talking of the children--what about the little girl?

R: Unconcerned--she doesn't realize what it's all about; winds or anything like that--you see she's only four years old and it just didn't make a big impression on her. She's never discussed it with me; never talks about it. She's kind of happy-go-lucky anyway, you know, and it just never made any impression on her. It just seemed like--she know something had happened, of course you know, but a little kid like that--unless they are hurt or injured or something like that--it wouldn't make any impression on them. She'll never remember this storm--oh, she might--but I doubt it very much. Now, the boy will, he'll always remember it. ... He'll always have that fear in him until somebody that's got a better explanation than

R: I have, or somebody can talk to him and convince him that he shouldn't be scared of it or that he should not get scared of every little cloud and wind that comes up. It will just have to wear off with age.

I: You mentioned before--something about distant relatives in Judsonia--were any of your relatives hurt in any way?

R: Well, now, they're not kin to me. You see, my wife's brother married a girl in Judsonia and they wasn't any of them hurt. In fact, I don't think the people in their house even realized there was a storm or one coming, at least they didn't never discuss it with me. Now, the brother-in-law, he was in his house and he told me that when things began to blow in, they didn't suspect a storm or cyclone coming either. I don't know what part of the house they were in and where they were, but he said when the windows begin to fly out that they ran to the opposite of the house--for instance, the windows were blowing in from the southwest, why, they ran to the northeast part of the house and he didn't tell me about his roof going off. What he thought about it? He said it just all happened so quick he didn't realize what it was--what had happened--and he was more or less dazed about it. He was kind of in a daze--to just look up and see the open sky. It rained awfully hard and I think they pulled right out and went to this house next door where I was telling you all these people were and stayed there until the winds died down--or rather the rains stopped. You see, it came a terrible rain after this wind--just in sheets--that's where they were. I never did talk to him very much--what he did do; how he felt.

I: Were they hurt in any way?

R: No, they wasn't hurt a bit. None of those people were hurt. They didn't require any hospitalization; they didn't require any examination; no skinned places; no bruised places.

I: Were any of your close friends hurt?

R: Well, the man across the street was hurt. They took him to the hospital and I haven't seen him since then. I don't know how bad he was hurt. This Johnny Allen and I were pretty good friends--you see, he was killed--and Mr. H., his son was killed--they're very close friends of ours and I didn't see them either. I didn't see them until sometime this week. I had a lot of friends in the neighborhood there that wasn't hurt that all came to see about my family and none of their people were hurt. The little girls in the next block from me, I understand, they were blown completely out of their house across the road. They've gone--left for California now--but other than bruises and scratches--why that's all, weren't seriously hurt.

I: Those friends that got killed, when did you find out about that?

R: Oh, within an hour after I got there, I guess. They were digging in their buildings for them and of course, I went up there and asked about them and they said they were under all this rubble. My only thought was to get in there and help--help get them out and the other people the same way.

Case 2-11

I: Did you see anyone who was injured that night?

R: Not that night. I did the next day--I saw this Mr. A. He was hurt and I saw R. O.--they picked him up out of the street--he was badly hurt, I think his leg was broken and his head was skinned up pretty bad where the bricks had fell on him and I called on him as a customer and I saw them leading other people out but they were so messed up I didn't know who they were at the time. They would either have a coat over their head or they were carrying them out. You just didn't stop to see who they were--at least I didn't. I was with this group of men and we were either going or coming or in digging and someone would say "Well, there goes so-and-so." Well, you'd look and that would be all--they'd be taking them out. R. wasn't knocked out; he was conscious the time we got to him. We carried him to the furniture store there directly in front of his store--windows were broken out--we took one of the mattresses off of the bed and put him on this mattress until the ambulance got there. Well, I left him see, I didn't stay and talk to him.

I: How did you feel when you saw him?

R: It didn't excite me any. I knew he was hurt but as far as a feeling on the inside--I didn't--it didn't affect me emotionally or anyway like that--none of it did. Later on, you know, after two-three days afterwards, then it begin to--you felt sorry for people and it hurt you on the inside to know that your friends--different ones--lost some member of their family. You felt sorry for them and on the other hand you thought how lucky you were that your family got out safe and nothing like that--a serious wreck or someone being killed or shocked. I don't know how it would affect me if it was my own people--but seeing other people that way--and I have seen quite a few in car wrecks and during the war that were hurt or injured in some way--it didn't make any impression on me at that time. Later on you think about it but in an emergency like that or when these things happen, it doesn't bother me; I don't go all to pieces. Some people do, you've seen some people just throw up their hands and wail and holler and everything but it doesn't bother me that way. It's a day or later when I have time to think it over--then it bothers me. On the spur of the moment it doesn't.

I: Well, why do you suppose that is?

R: I couldn't explain it to you--more or less training I suppose. We've all had thorough schooling, you know, you get a certain amount--you absorb it to a certain extent through school and up through life and in your army training and everything, you just kind of expect those things to be bad when you come up on them and I couldn't explain why it doesn't affect me. Nothing like that--it doesn't--I've seen lots of people in my traveling around that would be in car wrecks and some killed and some mangled and everything and I'll tell you one thing that does make an impression on you and that is their crying for help--asking for help; begging for help or moaning and all that ....

I: You mentioned army experiences before--what sort of experience?

R: Well, not too bad, but that's kind of past history and I don't care much about going into that part of it. It didn't affect me in any way but it's just so vague in my mind now and I'd have to think a long time before I could ever bring it back. But as far as being in the thick of the battle or anything like that--I wasn't. It was accidents, more or less, or things that happen on the base--I don't mean front line experience or battle experience. What I meant was explosions on the base and airplane accidents and things like that--ships cracking up; there's one or two ships cracked up and I was in on the rescue--that is, with the group of men--the only thing that comes to your mind is to help those people, to do what you can for them--you've got a job to do. You see, that's altogether different than this civilian business--you're trained for that kind of stuff. In civilian life you're not.

I: How badly damaged was your house?

R: My house--there wasn't anything left but the water tank--the hot water tank--and the broken pieces of commode. The walls were completely away from the house and the house was off of its foundation--that is, the floor--but the walls were all scattered out in the street with the exception of these two that I told you about and, of course, pieces of furniture and pieces of clothing and linoleums and rugs--chairs all broken up. As far as being able to salvage anything, there wasn't anything to salvage. It was all broken or torn somehow or other. I just gave it up as a bad job--that's it. I didn't have any thought of picking up furniture and trying to salvage it. I did try to get a few clothes and just looked around to see what I had left.

I: On the way to Judsonia--besides your family--were you worried about what might happen to your home and the things you own?

R: Well, from the highway--the way I went in--everything was blown away. You could see what happened to it. When I could look across there and see all those places gone I knew something--I expected to find the worst you know. You couldn't--driving a little bit fast--even think. I had to watch the road. I had to watch what few cars that was coming on the road were behind me and I didn't give it too much thought. Had my mind set more or less on getting there. I didn't think what could have happened to the family until after I drove my car in and got out. Then I was concerned about them--there they were and what had happened to them. But going over there, I only had one thought in mind and that was to get there and get there in one piece--get under all those wires. When I left I got out on the highway and saw those wires all down. The first thing that came into my mind was that they would be still alive and I would have to avoid them--any kind of a wire--not take a chance. That same thing was on my mind all the way in--to get there in one piece--not have a wreck or not hit anything; run into any of these wires. I was rather careful; I watched what I did. I could see them--it was light enough that I could see them--see where they were. There was two-three tourist cars ahead of me and they were driving slow and one man had stopped in front of these wires--trying to flag me

R: down. I slowed down behind this car but I saw there was a place where I could drive out on the shoulder of the highway and in the ditch and get around those wires and I did that. That kind of broke the feeling too--to get there in one piece--to watch him; he was out in the middle of the road waving both hands. I suppose he thought maybe it was a crazy man driving this car because he stepped back when I drove by him and ... by the time you hit the schoolhouse, then everything was levelled. You could see everywhere within a radius of two-three blocks. You're familiar where all these houses are--who was there--whose home was here--and see it all gone; it made kind of a bad impression too. You wondered what had happened to them--you couldn't see them--there was no people around. There was a few people on one side of the street--hovered around cars and these people possibly were in those cars--I didn't stop to see, I was anxious to get down to the house and different ones said something to me; I don't even remember what they said. I do remember one boy made some remark to me about wasn't this terrible or did you ever see anything like this. His face was showing strain--I would say it would be fear in his face or he was frightened and he saw his mother and, of course, he broke there. ... I did slow down long enough to see that--it seems like I asked him if his folks were all right but then I went right on--I didn't stay and talk.

I: You also mentioned before that people seemed in a state of shock. What did you mean by that?

R: Well, they were more or less stunned. They were walking around and milling around and not saying anything. They didn't even seem to be in a hurry. They were just like they were lost--they wasn't saying anything to anyone. Those that were together that I saw were consoling different ones. It might have been of their people or neighbors or something like that. But just a fellow by himself or any of them--they just seemed--they were looking to the right, to the left--but their face showed no expression other than a stare, and walking--they were walking with a stare on their face like they couldn't believe it. ... No one was hysterical or anything like that. I didn't see a soul that was that way.

I: Did you hear of anyone becoming hysterical?

R: No, I don't recall hearing anyone being hysterical. I had several people to ask me if I had seen some of their friends or some of their people and they were showing a--more or less of a strain on their face. I wouldn't know whether it would be anxiety or what it was but you could tell that they were deeply concerned over these people. There were no smiles; no laughter or anything like that.

I: When you were working there did anyone take the lead sort of? Take charge--or how did you proceed?

R: Well, it wasn't organized or anything like that. The fellows just seemed to pair off together. I don't even know who the man was that was with me,

R: never saw him before--seven or eight of us there, we just kind of paired off together and we went in this direction and the others went in the other direction. Of course, we talked back and forth to each other and when we lifted up these pieces of timber, he'd say "I'll hold this up and you get under and see what you can see" or "you help me lift this off, there may be someone under here." Then later on why some fellows came by that I knew and we talked back and forth to each other but I wouldn't say they was any particular person in charge or took charge in any of the bunch I was in anyway.

I: You mentioned something before about pilfering going on--did you see any of that actually?

R: No, I didn't actually see any pilfering going on. The next day--it was daylight--in other words it was Saturday--and they was a few strangers came through and someone begin to pass the word around that there had been pilfering--people who didn't belong there begin to look through things. I wouldn't say that they actually did pick up anything because I didn't see it--it was told to me by others, you know, better stay around and watch your place, there's a lot of people coming in that doesn't belong here. Well, people have those thoughts--they seem to have thoughts like that--that will go on and I think they say those things when actually they don't know whether its happening or not. It possibly did happen later on. I didn't see any pilfering going on. In fact, the strangers that came by the next day--where I was--they didn't offer to pick up anything--they just stood around and looked or they asked questions if you were in the house or if there was anybody hurt and would make remarks--I don't see how you got out and such things as that; worse storm they'd ever seen or worst disaster they'd ever been around. But they didn't--the people that I saw--they didn't offer to pick up anything. Several came up and asked if I needed help or anything like that.

I: Were there many strangers in at the time?

R: Saturday afternoon before they got the things kind of under control they was people came in from neighboring towns. I wouldn't say they was strangers--they was strange to me. Sunday they was any number of them came in, they even told where they were from--some of them did--as far away as Walnut Ridge, Arkansas. ... There was quite a number of out-of-town people in there--just sightseers more than anything else--they wasn't offering to help or anything. Just walking through. Later on the National Guard and what few police officers there was begin to run these people out of there and stop them and question them and ask them where they were from or if they had relatives there and if they didn't have would they please get out, that they were hindering the moving of the debris and searching for the people. Evidently they still thought there was people in the wreckage Sunday and they must have been but I didn't know of it if there was. In the section where I was everything seemed to be pretty well squared away as far as rescue work was concerned.

Case 2-15

I: How did you feel about these people?

R: About these strangers--these people? Well, since I didn't know them I didn't have any feeling against them. I didn't know whether they belonged there or not, but Sunday I begin) think that these people should stay out--those that told me that they came in just to see--I resented their presence in other words. ... Questions they would ask--some of the things--would irritate you just a little bit and then--I didn't say it--but you wanted to tell them to go on and mind their own business, but I wasn't impolite to anyone and no one was impolite to me or they didn't make any cracks or anything like that.

I: What were some of these questions that irritated you?

R: It was the continuous questioning by different ones you know, a group would come up and ask you questions about your house and your family. Well, he would no more leave and you'd look around and there'd be somebody else looking, ready to ask you a bunch of questions. They were wanting to know what you did; what happened you know; where your folks were; who was hurt; how many were killed. They were especially concerned if there was anyone killed in the building and it was just so many asking questions that you soon got tired of it--you know, explaining. I was tired anyway, I'd been up so long and didn't have much rest. But there was no harm meant by any of them--they was just wanting to know.

I: Did you have any trouble findi:g a place to sleep?

R: Oh no, they even sent for me asked me to come by and rest, you know. In other words, I had a place to go whenever I finished my work. I wasn't out in the open like some of them with no place to go. You see, there was any number of people who had no place to go. I don't know what they did, but no one seemed to want to go anyplace else. They either wanted to stay around and help or look through their wreckage and things. I know there's people stayed up all night long and nothing else if they wasn't helping anybody they was just standing by watching--didn't offer to go into shelter even in the hard driving rain--they were still out there--onlookers I guess you'd call.....

I: Did you ever have any trouble getting enough to eat the next day?

R: No. I don't know why, but I never did get very hungry. I did have a craving for something hot--such as coffee--and let's see, it was sometime Saturday when I did get something to eat and it was coffee and donuts as I remember. It seemed to satisfy my hunger and I didn't stay around--I went right on back out. I believe someone even brought a pot of coffee up there where we were--a thermos jug of coffee and donuts. It wasn't a Salvation Army worker--it seemed like it was someone in the town there brought it--someone even left a thermos jug of coffee for us--thermos bottle rather. But as far as being hungry, I don't think I got hungry

R: until some time Sunday I begin to get a little hungry but I got plenty to eat from the Salvation Army--they were there that night--it was more or less first aid that night and something to eat the next day.

I: What about the drinking water--wasn't that knocked out?

R: Well, the water there at my place never ceased to run until they cut it off some time--I believe it ran there until Monday morning. Those that didn't--there was a pipe that was broken off and it was shooting out this pipe--that's where they drank--those in that end of the town, a few of them, I don't say everybody. And that's something else that didn't occur to me or come to me--that I was ever thirsty until I got this coffee. It seemed to do the job. I don't even recall taking a drink of water, during all this--the first part of the storm. There were cigarettes passed among the men--those that didn't have them were offered a cigarette--something like that, but hunger and thirst didn't enter with me.

I: After you moved--you moved around a lot--did you have any difficulty in getting around--transportation afterwards, the first few days?

R: Well, I didn't have occasion to want transportation at that time. I left my car on the street. I could get it in and out and of course I couldn't get it down where the people were staying because the streets were all cluttered up and the wires across there and I just left it there and I walked everyplace. I didn't use my car until Sunday afternoon, and I wasn't--I didn't need transportation. This--it didn't take long for them to get these bulldozers in there and begin to clear the streets. They were in there--they unloaded those things early Saturday morning--I think they brought one or two over from Searcy--the highway department or county--and those were in there very early--I'd say they were in there eleven or twelve o'clock--you see this storm happened about 5:30, and let's see, that's five hours--there's a lot can be done in five hours in a short distance there. Everybody seemed willing to help get stuff out of the way so they could bring a truck in there and clear the way for ambulances to get in and out.

I: What were--what are the major problems that the tornado has raised for you?

R: Housing mostly--the loss of the furniture and my possessions. I just seem to take it for granted that they're gone and I'll just have to start all over again, but the main thing is the family is in one part of the country and I'm here, and we need to be together, especially so soon after the storm because I think it would help all of us to be together and it just not anything available where we can all be together without tremendous expense. They's any number for sale, but after a thing like this happens why, I don't feel like jumping right in and buying something right off the reel. I'd rather wait just a little bit and kinda see where I'm at. One thing about a storm like this--until you start setting up housekeeping again you really don't know what you have lost until you get under way again. As it is now--when it's not before us--we don't miss it, but now when we get together, why, then we'll realize sure enough what we've lost. It'll make a big impression on you then. I know, I talked to a lot of

people that have gotten temporary quarters or they've gotten a place to move to and they'd said, "I didn't know I did have so much to lose," and they'd talk about the different things. Well, now in my case, as far as furniture and bedclothing--and there's your little odds and ends of medicine that you have--your keepsakes--your hunting equipment--your fishing tackle--all that--that all costs money and you won't know how much you have lost until you begin to look for these things, but at the time, well, the loss didn't concern me--the thing that concerned me, was the folks all right? Well, now I'm thinking about it because I've got to replace it.

I: What has been done to help you?

R: Well, I haven't applied for any help so far. I think my wife went to see the Red Cross people yesterday, but I haven't been to anyone--I haven't asked for any help or I haven't been to see anyone. I haven't filled out any questionnaires or been to any of these relief agencies such as the Red Cross and the different churches and things like that. Kind of feel like that I can make my own way in a period of time and not have to ask for help. There are so many more people that need it and are worse off than me and my family--I'd like to see them get a little help and it seems that the general attitude of all the people that I've talked to with the exception of a few that they're not going to get any help through some of the organizations that have offered--are set up for that purpose--just taking the detail work, but I think possibly that they think it would be given to them right off the reel--as soon as they ask for it--they possibly don't stop to think how much detail work goes with it--how much time it will take and that's causing a little bit of feeling among people--that they're not going to be helped--the people that I've talked to on the street--different ones. A lot of ex-service men that I know don't have any faith in the Red Cross--they just don't think that the Red Cross will help them. They seem to think that something else goes with it. I don't know where they get that idea. I've never been in a position where I've had to ask for help from the Red Cross or anyone, really. Until my time comes, why, I don't know what my feeling would be. There's any number of the boys seem to think that the Red Cross will do nothing for them. Why they have that attitude, I don't know, but there must be a foundation for it.

I: Well, have you heard any talk about the way the relief work is being handled?

R: I can't remember any conversations off hand right now--how those fellows feel or how they express themselves. A few of them were a little bit impatient and said, well--in no uncertain terms--I'm certain the way they put it to me--"Well, the heck with it--I'm not going to get any help anyway--I'll just go ahead and do the best I can." There's not very many boys that--or men--in my stopping on the street and talking to them--seemed to have any idea that they are going to get any help. Others--the ones that--I guess maybe I ought to classify these people--I don't know how to--the people that have had means and ways--maybe lived a little better--they seem to think that the Red Cross and these different relief agencies are going to come right on through and those are the people that hesitate to ask for any help, but then there's another class that seems to think it

should be given to them right off the reel. Now that's the way I get it. Some of the old folks have asked me and have asked some friends of mine what to do—who to go to, and have asked, "Would you go to the Red Cross?" I told them to go. And these other boys that are in my class—I don't know how to explain it—boys that have pretty good means of living and have an income and own their home, etc., well, they have all advised them to go.

I: In regards to helping people, you think something could have been done that wasn't done?

R: I don't see how they could beat what they did in the way of setting up first aid stations and getting the National Guard in there and getting help. I don't believe it could be any better other than an organized army, standing by and waiting. As far as getting help otherwise, such as financial aid—why I think it will take time. I think they are doing all they can as fast as they can. After all, there are a lot of details to work out and as far as clothing and food was concerned—in a day or two or less than that they had plenty of food in there for those that would go get it, and the hospital care for the injured, and all—they did everything possible with what they had—everything was here or it had to be carried to Newport or Batesville or Little Rock. For major disaster like that, I don't believe it could be worked any better than the way it was carried out. And clothing—it could have been—of course those were donations—a lot of them—it wasn't sorted out in sizes—it was just bundles of clothing or boxes of clothing and possibly they didn't get the correct size or maybe some of it was a little worn. A lot of them needed—the biggest part of the people needed bedding and they needed quilts and blankets. I didn't hear any grumbling about the clothing they were getting or the food they were getting. Where the grumbling is coming in is getting a little help afterwards to rebuild their homes and place to live. Most of those people that do all this grumbling about the Red Cross and the Salvation Army and these different organizations--they don't stop to think how much time it takes and what kind of detail work they have to do.

I: Were there any problems caused by the tornado which weren't handled as effectively—as efficiently as they might have been? You mentioned something like bedding before.

R: Well, I believe that if—I don't know who brought in the first clothing thing—whether the Red Cross brought that in or the Salvation Army or what—but I think that if this clothing had been classified, in other words—a box of blankets, a box of sheets, a box of pillow slips, and so on like that, it would have helped. But as it was it was thrown in any place they could find because they had no place to lay it out or to set it up. There wasn't any place there except the Methodist Church and the old hotel over there. It was rather jumbled up and there was no one to—the place that I visited—there wasn't anybody handing out anything. Everybody was just in there grabbing, getting what they could. That's where there was a little confusion, and it was rather scattered. They had part of the things down at the box factory there and they had some of it in the old hotel building—they was still in the crates—it had never been gotten out—segregated, in other words, so you could tell what it was.

I went to see if I could get some blankets. When I walked up there and saw all that, why I just forgot about it and went on back. Later on I found my blankets--so I didn't need them.

I: Was there anything that you wanted to know that you couldn't find out about?

R: I was just in the group there. I could hear everything. I knew the fellows that were kind of--I knew the Mayor--and I knew kind of what was going on but I didn't have any occasion to want for information. But they were--seemed to be a little slow getting their headquarters set up for that type of information, such as where to go to get what, where to go to get this or where to go to get clothing, or where to go to get--to register for their loans, etc.

I: When did they set it up?

R: I think that was--as I said, I wasn't up here for a day or two and it was set up possibly after I left--maybe Tuesday--they begin to kind of get organized. Now down at the Methodist Church there they had a kind of a place to muster in and out who was missing and who was--where they were sent to--the people that were injured where they were sent to--to what hospital or what town. The Salvation Army had charge of that, and the Red Cross, too. But it was carried out pretty good. I think it was well handled. I think that that thing was set up as fast as it could be set up and handled as well as it could be handled under those conditions. I don't believe there was a great deal of confusion about these--what to do--how the place was set up. Everybody seemed to know where to go to. The Methodist Church seemed to be the nerve center. They'd go there to get all their information and then later on they begin to set it up here--in different districts, you know.

I: Did you go to the Methodist Church in Judsonia at any time?

R: The only thing I went there for was to get something to eat and to find out whether they needed working parties where I could help out the most. Or where they needed someone to do something, such as clearing out debris or act as a guide to the people--these relief people that were coming in there. They held their meetings more or less, there,--the people such as the Aldermen of the town and the Mayor, and they held that in the Mayor's office, too. They kind of got together and organized what was to be done, how to clean the streets out, where to send all this heavy equipment. The Arkansas Power and Light Company and the gas companies and the water companies--they were all on the ball. They got over there and they begin to clear out lines and the gas companies begin to check the meters and they cut off the gas and run things down in their line of work. The water company was there to check the different boxes where they turn off the water for certain districts--each one of those are laid out in zones. Where the water was running freely, for instance, up in my neighborhood--why they soon cut the water off there--they soon cut the gas off there--or took out the meter and plugged it or turned the plugs there--what do they call them?--shut-off valves. But I think that Arkansas Power & Light Company just did a wonderful job of getting their part done--they had full crews in working--the telephone company, too.

Case 2-20

I: When did you find out how big the storm was?

R: That night. They was--how come could you find it out--it had hit Bald knob and those areas and in that vicinity up there. Some one came in looking for me to tell me that one of my truck drivers was in the storm. There's a guy you ought to get a-hold of--he was right in the middle of the storm at Boldingville in a truck. They told me--and then I asked, "How far up did the storm go?" And they said it got part of Bald Knob and of course I saw Doniphan over here. I didn't know whether Kensett was hit or not but word begin to come in where it had hit that night and the next morning people from Kensett and people from other towns that had gotten in there to help out, told where all they had hit.

I: How did you feel when you heard how big it was?

R: I was rather dumbfounded that it could be so wide and so big. All that I had ever read about or heard about--hit in a small area. But Saturday or Sunday, one of those two days, different people from different sections of the town told how the storm hit in their area. Because I could see all the biggest part of Judsonia there where my house is--the worst part of it--and I never did go look at the other parts until a week later, but I didn't realize that the storm was as bad as it was and covered such a distance or area. It made quite an impression on me that it did as much damage as it did. People Sunday afternoon came in from Desark and told me that the storm had hit between Desark and Searcy and then also told me about hitting around Cotton Plant and Carlisle and England.

I: Did you hear any stories about how much damage was caused by the storm?

R: Oh, yes--an estimation--I heard any number of people estimate how much damage it did in this particular district here and of course it was big, most of it was--how many hundreds of thousands or million dollars worth of damage it did. Each one had his own idea. Personally, on mine, I didn't even try to estimate how much damage it did since I read of so much about it--what damage it did do. People from Augusta came in that had been in the Cotton Plant area and told me what damage it did there and how it missed the town, how many people it killed for the district that it covered, and I was surprised it killed so many people and in that small area there. I think it was 27 or something like that and then the next week when I went back to work I drove through there on my way to work my territory and I saw part of it. It didn't look near as bad as this storm here--of course it was in a rural district--this was in a town. Most of this damage was done on the farms or the edge of the town. I don't think the average person realizes the damage it does to a farmer's house--it's just one house or just two houses or three. They don't think about the people that was killed in there and you see it scattered over a small area where if they walk into a town like Judsonia they're amazed at the damage that's done.

There's lots of talk about the storms in the past and a lot of comparison made between the storms in the past and this storm. I heard that this was the worst that they had ever seen. That's about the only talk that I heard of--comparison--not rumors.

I: Why do you suppose some houses were so hard hit and others weren't so badly damaged?

R: This storm just happened to dip there. They skip about and that seemed to be the path of it. It jumped Searcy. These people here claim that this Bruce Mountain or Hill turned the storm and also a strong north wind changed the course of the storm. Otherwise they seemed to think it would have hit here. But it hit this place and bounced and the wind changed its course or helped change its course and it went more southeast and then northwest and it just—it dropped when it did—it goes so far and then it drops and then it will rise again and it will drop some place else. Maybe it will go for miles and then drop. I believe that they traced this storm as far over as the other side of McCrory. It kind of played its course out there—not very much damage was done—then they break up. Some people in Judsonia claim that there was two storms met and hit at the same time. No doubt it did—the damage it did—I don't think one storm would do that—one tornado—or one twister—whatever you might call it. Some people have a superstition that—I don't know whether it's a superstition or not—there may be something to it—that a storm will follow a course and hit back a second time. Others think the town was being punished for something, but I don't think so. I think that's just a—it could happen here—it could happen anywhere.

I: Did you have any idea what a tornado would be like or was this different than you expected?

R: This is a little different from what I expected it to be. Any place that I had been visiting in the past where a storm had hit it wasn't such a wide path.

I: Was this better or worse than you expected?

R: It's worse than I expected. I didn't expect to find as much damage done as I did find since I ran into it out here and saw what had been done there. That's thinly populated out there—in other words, there's not a great number of houses like there is in a town. When I saw that I thought, "Well, maybe it hasn't done too much damage," but when I got to Judsonia or got where I could see it, I was astounded how much damage was done. I just couldn't hardly believe that the whole town would be wiped out like that. I think if another storm would come up I would be more concerned about it from now on than I ever have been in the past. I imagine my reason for feeling that way is because it hit at home. A lot of people never give things like that a thought—they hear of a storm—they hear of a disaster somewhere—they actually don't realize what has happened until it hits close to them and then after that has happened they are more concerned about the other people. I wouldn't take a chance from now on out on any kind of a cyclone condition. Everybody came in or everybody that I talked to—expressed their thoughts about the storm that they had never realized a storm did that much damage until they saw this.

I: After the storm, did you feel sick or ill in any way?

R: Never at any time. My emotions more or less got the best of me when so many friends came in?

I: I'm not clear?

R: Well, that was--I would be up at my place and these fellows would come in and they--it just made you kind of choke up a little bit, you know. They were feeling sorry for you or they were sympathizing with you just a little bit and it kind of--you'd see some fellow come up that you had known all your life or maybe your best friend and say, "Well, Roberts, I sure am sorry to hear this--," and all that--it would kind of bother you a little bit but never did bring any tears or anything like that. I didn't sob--the way I did it--I said, "Well, I'm lucky my folks are all alive--the loss is nothing compared to what it could have been if some of them were killed." I saw some that were grief-stricken--when their friends came up--and sympathy got the best of them--they cried and sobbed and tears came in their eyes and things like that. But it didn't bother me that way. The way I thought--I was just so thankful that my people were alive--my family was alive--I didn't even think about my loss--it would have been bad the other way and there was no other way for me to feel but to feel thankful or grateful that they escaped uninjured and I couldn't think about my personal belongings and things like that being blown away. I didn't even think about those things--they didn't mean anything to me as long as they were all right.

I: You mentioned before something about not noticing hunger for a while.

R: Yes.

I: Well, did that continue--loss of appetite or anything like that?

R: After the first day? No, I think the reason I didn't get hungry or didn't notice it probably was because I was working hard and didn't want to quit. Going without something to eat isn't anything unusual with me. I never eat lunch during the day--I just go ahead and work--hunger doesn't bother me that much. I eat a heavy breakfast, a big breakfast, as a matter of fact, and I go without lunch. Maybe drink milk or something. It didn't bother me. I didn't hear anyone else say anything about it. But I think maybe the work that I was doing--I didn't think about wanting something to eat. It wasn't nervousness or anything like that--loss of appetite from excitement--it's just the fact that I didn't want to quit to go eat,--that's about the only way that I can explain that.

I: Well, since the storm, do you find it harder to keep your mind on things and concentrate?

R: My mind--it's on--it's on the town. I wonder if it will build back. How soon it will build back. How many people will stay. How many will leave. In other words, I just wonder what they're going to do. But as far as it being on my mind or dreaming about it or seeing it--dreaming about it at night or seeing it all the time like some people do--why it doesn't stay in my mind at all. I get busy and go to work and I forget about it. Some

people say they can't sleep. I just talked to a lady today. She says every time she lay down and dozed off she would begin dreaming about flying lumber, splinters and rubbish going through the air. I don't see that. Doesn't stay on my mind that way. Of course the picture of the destroyed town is there. Sometimes when I'm driving the picture of it comes back in my mind and the people standing around, but other than that it doesn't--I don't dream about it or think about it.

I: What pictures did you say come to mind that you--?

R: Just a picture of the town and people--that night when I went into the storm--seeing those people in the street--the first view of the town as I went in there. Once in a while that will come back to me. But it doesn't come back to me unless I get to talking to some one. As far as sitting here in the room or going down the street thinking about it--I don't think about it. Sometimes when I'm driving I'll have some person on my mind. I'll picture the street and try to see if I can see those people or remember seeing them or remember if their house was blown away or just exactly what happened to it. But it goes off just a minute--it doesn't impress me in any way.

I: How often does this happen?

R: Why, I couldn't say--maybe once or twice. I'd be maybe sitting around here in town and somebody'd come in and--"Well, Roberts, I heard you was in this storm--" --well, I'd say, "I'm not in it--my people were in it--" and they begin to ask a lot of questions. Then you kind of visualize how this thing looked as you explain it to them. That's the only way it comes to my mind. Some customer will ask you about it and it kinda comes back. As far as suffering from shock or anything like that, it didn't affect me any way at all. I don't have a horror of the town or the storm in my mind. The only way it comes back to me about the town is through a discussion with someone.

I: Who do you talk about these things to?

R: I call on a lot of people and they all know that we live there. Even today--this is the second trip around--and they're still asking questions. As a matter of fact I do more answering of questions than I do selling. It's pretty hard, too--the first time. I don't think I got any work done at all by answering questions. This time it was a little better but it's kind of blowing over now--they begin to talk about other things.

I: When things quieted down a bit, did you find it harder to do your regular work than usual?

R: No. It didn't bother me. As a matter of fact, I've kind of shown a little increase in business. In other words, it wasn't hard for me to adjust myself to back to work. I took off that week--had the man work my place--but when I got ready to go back Monday morning, I carried on just as usual. I didn't stop me from going to work and I haven't worried a great deal about it.

I: How much time did you take off?

R: Just a week.

I: What were the reasons?

R: The first few days was to—of course, you see, Saturday—Sunday—you could hardly count that as taking off a week—but Monday, Tuesday, Wednesday and Thursday—it gave me a chance to get my folks located somewhere and gave me a chance to make arrangements or to look for something, and gave me a chance to kind of clean up around the old place up there and maybe find a few odds and ends of tools—just look for things, and gave me a chance to help some of my neighbors, and it gave me a chance to help my brother-in-law and some of his people. The boss seemed to think that I needed time to get things done. He had a fellow work my place. What I mean to get things done is kind of—to look for a place to live and to—if I had to do any—such as going to the Red Cross if I wanted to go to the Red Cross or if I wanted to see about buying a home—why it would give me a chance to look around. That was the only reason I took that week off. I even called him after—or I sent him word that I would be ready—would go to work in two or three days after the storm happened. He sent word back, he says—"Take a week—you'll need it to get straightened out in—buy a few clothes—" —things like that. Sure enough, I did have to. I had to go buy a traveling bag for one thing. I had several pairs of shoes and they were watersoaked, shrunk, and I couldn't wear those. I had to go buy some dress shoes, you know, and I had to go buy some dress shirts and I had to buy underwear, and so on and so forth. It took a little time and you couldn't do it so much here so I went to Little Rock to do all that. In other words, I spent three days in Little Rock and we had to take what few clothes we had to the cleaners and to the laundry and go back and forth—that's the only reason I took that week off.

I: What would you say was the worst thing about the storm for you?

R: What would I say the worst thing about the storm was? There's so much there, it would be hard to say. I believe that the loss of lives was the worst thing and then next to that the loss of property and homes and the confusion that it caused among the people—where to go—what to do—what they were going to do—but I'm—the thing that impressed me most was the number of people killed in the town here. To the best of my knowledge I think someone told me—that there was 34 killed outright that night. Others were found later on or died later on. I believe that was the worst part about it for me. I didn't think about property loss so much, the the seeing of people trying to get their belongings together and moving out and things like that made a pretty big impression.

I: In the storm, what upset you most?

R: I can't say that anything upset me. I wasn't emotionally upset or mentally upset so it didn't affect me either way. It was bad, you know. I had that feeling—it was a bad thing—but being emotionally upset or mentally upset or make a—creating a feeling of horror of anything like that—it didn't bother me. I don't think it bothered my wife. It possibly bothered the boy just a little bit. I didn't see too many people that were emotionally upset. Those that lost some member of their family were. I saw quite a

bit of that at the funerals and naturally we'd see that anyway, but people that didn't lose anyone—any member of the family—"Well, I've got it all to do over again now," that's just the attitude they had—they weren't upset so much. Then about the third day some of them begin to see the brighter side of it and talk about—"Well, I wanted to change the house, anyway and now will be an opportunity," so I'd say on that third day after the storm they begin to get a different view of things. They didn't have their minds so much on the destruction as they did getting started all over again.

I: What about yourself?

R: Me? The only thing I had in mind was to get my family together up here so we could be together at the end of the day's work. About furniture and all of that, I'll just have to start all over again. In other words, we'll start housekeeping all over—just like it was when we first got married. As for home—why, I don't plan on buying anything right now—I did plan on renting and we're not going to jump right in and go in debt for a lot of stuff. We're going to get by the best way we can on as small amount as we can. Try to get by on a pay-as-you-go basis. In other words, if we furnish one room, why, we'll pay for it. We don't want to go in debt for it and there's been several people offered me help—that is, friends and just individuals come to me and tell me, "If you need any money, why, let me know." Well, I don't want it--I don't want to be obligated—I don't want to have to pay it back--I'd rather try and do it myself. I had one outright gift of money left for me and I turned it down—it wasn't pride or anything like that—I just didn't want to accept it. One fellow offered to lend me a lot of money and I could pay it back whenever I could or a little at a time—it wasn't a gift—it was a loan to be paid back as I could pay it back, and I turned it down. Now those are personal. From an agency that does those kinds of things, I possibly would accept that. I have—the way I feel about it—I have a good job and I'd rather—there's two ways to look at it: if it's a gift from some of these—like a church organization or the Red Cross or something like that, why, I wouldn't mind taking it and then if I couldn't get it that way, from some firm or some outfit that would make a loan to you. I would accept that and pay it back, but I wouldn't pay back a loan—say, like go to some of these agencies there in Little Rock and borrow a thousand dollars and pay it back at a high rate of interest and have to meet payments every month—a hundred dollars or fifty dollars or something like that.

I: Do you feel you've changed in any way because of what's happened?

R: Do you mean—do you think that the storm would make me change my way of living?

I: Well, living, or in your ideas of things—your values?

R: I was changing all along for the best. Maybe this will rush it on. Yes, I think it would change a man's outlook on life in my position. I believe he should live a little different life—it makes you think of a few things that you could do in a better way--a better way to live. So far, I think

that's the reason the family wants to get back up here with me—all of us be together—it makes a family closer together. In other words, they're a tighter circle than they ever have been. They realize—they seem to realize what could have happened. It didn't—so why not live a better life, see. That's my attitude and I think it's everybody else's that I've ever talked to.

I: What do you mean—a better life?

R: What I mean by that is—that just—I don't hardly know how to explain it myself since I made the statement. We all belong to the church and we all attend church. It just makes you feel a little different—have a little better outlook on life. In other words, don't regard it so lightly.

I: You think the town has changed in any way?

R: No, I haven't noticed it so much. Everybody seems to be thankful that it wasn't any worse and they all—some of them—seem to think that since they got through this that they will turn over a new leaf and try to live a better life—I suppose you'd say morally and spiritually, too. You see a lot of them that way and you hear a lot of them talk that way.

I: Have you gotten to know any people better since the storm?

R: Yes, you find out about a lot of people—how they feel about you. Before this happened, they possibly walked down the street and spoke to you and talked to you a little—wasn't concerned about your welfare or anything. Since this happens—has happened, they seem to be more concerned about your family—your welfare and just about everything in general, and they'll express their feelings towards you—they seem closer to you, friendlier to you, and they seem to want to help if they can, you know. That's the way I seem to find it, anyway. In over here I was just not too well acquainted with a lot of people and I didn't think they knew me but come to find out they did know me after the storm was over, or during the storm and they were concerned if I was in the storm or if any of my people were hurt—where I was, see, a lot of people didn't know if I was in town or out of town and when you'd meet them they said, "Well, boy, I wonder where in the world you was—I couldn't hear from you—I couldn't see you—nobody had seen you—we didn't know whether you were in town or out of town." Those were people I had hardly ever talked to before in my life, maybe spoke to them on the street, waved at them or something like that, but as far as being close to them as friends or in any social gathering with them or have any chance to meet them formally or informally, I never had. And there's another little thing that I didn't think ever existed before and I don't know why it would happen other than possibly there would be two reasons that people want the town to come back together again—everybody come back—don't leave, come back and live with us. The point is, before this, I never thought they cared whether I lived there or not, and it made quite an impression. A lot of people afraid the town's going to fade away—won't be the town it was before and they're concerned about it.

I: Have you gotten together with people more since the storm?

R: No, I haven't really had a chance—I've been working all the time. After the first week I told you about, I've been right back working and I haven't been in the town other than to make business calls. That's only been once since—or twice, I guess it was—once a week—it's been three weeks and the first week I didn't work there. So I haven't had a chance to be at any public gathering or any social gathering or anything like that.

I: You think you've learned anything that will be helpful to you or anyone else in case of another disaster like this one?

R: Well, as for myself, I would know more where to look for people and I would know more about what to do to help or to help organize—it wouldn't be just everybody running for himself. I think it would be best if they would get in groups and one man kind of take the lead in rescue work and I believe that I could help out quite a bit in—I'm not trained in first aid or anything like that, but I mean, just helping in general and trying to lead people out—make them see it a little bit different, and in case they were excited or anything like that I think I could calm them down or talk to them enough to get them to realize that they couldn't stay in a form of excitement or a state of shock. I believe I could bring them out of it and get them to work earlier or faster. I think I could even guide them to a certain extent in how to get aid from the Red Cross and the aid from their different organizations such as a church organization or something like that. Even to the loss of life I believe that I would be steadier than some of the people were since I've seen it happen. If I lost members of my own family in a disaster like that I believe I would be more steeled to the fact, would accept it a little better and I think that some of the others would be the same way.

I: What do you suppose kept you going through the whole thing?

R: I just don't know—I just realized somebody had to go—somebody had to do something. That's the way I felt about it—I had to—I just felt that I had to help and I don't know what gave me—I didn't have any superhuman strength or anything like that—just the desire to want to help. I would help anybody in anything like that—in a fire—in a storm—flood or any—or anyway that I could lend help to anybody—I'm just turned that way—I would help them. It wouldn't necessarily have to be an emergency because if they were in need of something and I thought I could help them, why, I would. I have done it quite a number of times.

I: In general, how would you say the people in Judsonia acted?

R: They were orderly. There wasn't anybody unduly excited or hysterical. At first they were somewhat stunned, like—"Well, it couldn't happen—it just couldn't happen to us," —but they soon got over that and that's about the only way I could explain it. I didn't see anything outstanding—anything that I could single out to you. Just to be perfectly honest about it—I was so doggone busy I didn't pay too much attention to what was going on other than my own work with the group that I was in. In the group that I was with, why, they wasn't anybody out of sorts or upset or anything like that. They just said, "Well, boys, we've got a job to do—let's do it—the worst has happened, or the worst is over with—now we have to clean it up."

I: Were there any people that didn't do as much as they could have?

R: Some didn't know what to do and some could have pitched in and helped separate or move things that possibly stood around, and there was a great number of people there that were just curious. On that kind of work when it simmers down to just a spot there's only so many men can get in there--then you'd call them curious and actually they're not--they're standing by and the reason for it is they can't get in there and help. There's just one or two persons could get in this particular spot, or five, maybe--well, maybe there was twenty out there wanting to. If you got tired and wanted to get out and let somebody in, they were perfectly willing to dive in there and help. Nobody stood back. For instance, when they were digging out this Allen boy's wife and children, there was a big group of people there and they all wanted to be in there, but they saw that they couldn't get in there without being in each other's way, so they was a selected few and they worked until they tired and somebody else stepped right in and took their place and so on until they got them out.

I: Were there any people around that made it hard to get things done?

R: Oh, no. I didn't notice any right where I was. I didn't notice anything like that.

I: Were there any particular individuals who were especially good people to have around?

R: Yes, some you would like to have there. You felt towards them that it was a kind of a fellow that you could depend on to help you, as a buddy, more or less. I didn't see anybody there that would make any great impression on me that I would like to have him around as a leader or adviser or anything like that. There were some friends there that I--it felt good to have them around. It was nice to see that they were willing to help--not stand around and be someone to just watch. I didn't see anyone that way.

I: To finish up--can you describe a little more your feeling when you were driving to Judsonia from Searcy?

R: I told you just about all I know on that. I didn't have any feeling of fear. I just wanted to get there as quick as I could and I didn't--well, I knew it was bad and I didn't know what I would find in the way of finding my folks but it still didn't give me a feeling of fear that they were hurt or that they were dead. The best I can tell you is that I was anxious --I was so anxious to get there--it didn't ever enter my mind, and then possibly after I arrived there and couldn't see anybody, I might have had that feeling that something dreadful had happened, but as far as dreading to go there or anything like that, I didn't have that at all. I don't believe that there was any time at all that I lost my nerve or anything like that. The best way I could tell you--I just had to get there regardless and was going to get there. I had a determination to go through that traffic--to go through whatever I had to do to get to home. That's just about it. Nothing short of being knocked in the head or killed or some-

thing on the way could have possibly—if I would have had to run to get in there I would have or walked or got there the best way I could. It just happened I was in a car. Naturally I drove a little faster than usual, and another thing was to—I wanted to be there if they needed—if anybody needed help—I wanted to be there and help out all I could, and that's about it.

I: How about your feeling when you saw Judsonia when you drove up?

R: When I drove into the town and saw what happened? Well, I just—the best way I could explain it to you without putting it into a slang term—would be that it was awful—it was a terrible thing that happened—that's about the only way I could summarize that for you. I could give you a navy term.

Appendix A-3

The respondent is a 33-year-old woman with no children. Her husband owns a small business. She was with her husband when the storm struck. Neither of them was injured, although the house was severely damaged. She was particularly concerned about her mother and sister who lived nearby. She found them unharmed and they were looking for her. Some of her neighbors were killed and she had to search through the hospitals to find an uncle and an aunt who were injured. The respondent spent the first night in a storm cellar seven miles outside Judsonia. She spent the next few days at the central information desk for the relief organizations working in Judsonia. She considers herself to be very fortunate since she was not injured and none of her family was killed.

Case 3-1

I: I'd like for you to tell me your story of what happened to you in the storm.

R: Well, I'll begin with a little while before the storm happened—to tell you that I didn't have any warning of this storm, and I was sitting right here reading the paper. And my husband said that he was going downtown to get a box of Post-Toasties. He has ulcers and that is what he wanted to eat that night. So he went out and he was just gone a short while but before he got back it had begin to rain hard. And so the lights had gone out, too, in the meantime and I had lighted two candles. And so he came on in and he had driven from town, home, and evidently was facing the cloud. But he didn't seem alarmed about it when he came in and I said, "I didn't think you would get home before it started raining too hard," and he said, "Oh, well, I think it's really going to rain hard but I think that is all it's going to amount to." So that was the extent of the conversation until I heard this roar and I said, "Is that a train I hear?" and he said, "I don't hear it." And I said, "Oh, I don't know why that train doesn't whistle," because this roar kept building up in my ears and in my head until it just seemed like it was going to explode, you know. And then I feel sure that my ears stopped up because I don't remember hearing anything else until after the storm was over. And, but after, when I said, "Oh, why doesn't the train whistle?"—he came in here and so I had gone to the door and was looking out and by that time the wind had built up until it was really getting quite fierce. And I said, "Bill, we must be going to have a bad storm," and he said, "Well, I don't think so—there didn't seem to be a bad cloud," so at that time this window here went out and I had that divan and coffee table there and the wind came in with such force that it blew the divan and everything right against us and just sort of pushed us into that room.

I don't remember hearing any sound at all and with that glass and everything, you know, you would have heard that sound, it seems. And then when we got into the bedroom we shut that door and got into the corner and I could feel the house sort of shaking, you know, twisting, maybe—at least it wasn't standing still. And the sheet-rock and texstone cracked all the way up—the baseboards were pulled out from the wall some and the amazing thing to me is that I didn't hear any of this. Then I said—well, I wanted to go out and get the car because I always heard that you were safer in a car than you were in the house during a bad storm. So my husband said "No," —it wasn't the thing to do—to get out and—well, before the window went out though I had tried to judge the time that this all took and I figured from the things I did—which was I made two trips back to the kitchen, blew out the candles and then turned out the fire the second trip, and then came in here and we were pushed into the bedroom, and then we were in there—I

"I." stands for the remarks of the Interviewer.
"R." stands for the remarks of the Respondent.

don't know how long but that was when the storm really hit, because I looked out the window and I saw some big, heavy porch furniture that I have here on the front porch go by and there are two or three slats over there in that field and that's all, and then my husband saw our bird dog just fly across the yard. He said it looked like she was about four feet off the ground when she crossed the highway, but evidently she wasn't hurt. And then I said, "Oh, we are going to be blown away," and he said, "Well, Mildred, all we can do is just pray," and we both prayed as honestly as we ever had and maybe more honestly because we felt sure that we were going to be blown away.

And then we had these huge trees here in the yard that were--they weren't uprooted--there was one uprooted--but two were twisted off and toward the house, but just enough to miss the house. But then we had this huge snag that stood about twelve feet in the air and it was blown and missed the house about twelve inches. Then we had these two huge concretes in the backyard and they were both tilted from the house, so we felt that we were very, very fortunate to have escaped it. All the time that this was happening I kept thinking about my mother and my sister who live about six blocks down the street from me, and they live in this old house, also because this house is quite old and it has been remodeled several times but the original structure is probably sixty or seventy years old. And so the minute the storm was over I just flew out the door and was yelling for my husband and we got in the car and started down there. And we didn't get very far because the trees, the lines and poles and everything were all across the highway. There was everything on the highway so we didn't know either that the current was off and he said we couldn't go any further--that we would be electrocuted, and so I jumped out of the car and just flew.

I fell down three or four times before I got down there and I was just so scared that I guess it didn't make much difference whether there were wires down or not, but fortunately we didn't have any current, so I saw everything down around the school house and just lowered, you know. There was just nothing there and so finally I could see my mother and sister coming this way and they were calling to me and I was calling to them as loud as I could.

So we all experienced the same feeling and we couldn't really believe that it wasn't--you know--that we were seeing the other until we actually felt each other. And really, I think that was about the happiest time and most relieved time in my life. And then we turned and looked at this service station and store that was right near there and of course we know those people real well, and so I looked at this lady and she was pulling off all her clothes and she was completely stripped. And her husband was there and he said--I heard him say--"You don't have on any clothes," and she said, "What difference does it make?" So I thought, "Well, I will go over and see if I could help her." And I did and I said, "Could I help you?" and she said, "Well, Mildred, I wanted to get these wet clothes off, because I am afraid I am taking cold." I looked down at her feet and there lay her twelve-year-old son--had been killed instantly and evidently she was in some state of shock because I know that she didn't realize that her child

was dead. And she turned to my sister—they had met—and she said, "You don't have on a coat—let me get you a coat." And she went and got her coat after she had dressed, and really, if you knew this lady you couldn't imagine her doing anything like that because she is a very refined, religious sort of person. And this child was their only child and she said that she had grabbed toward him just a second too late and he was blown through the top of the house and was killed instantly. Evidently he had landed on his head and broke his neck or something—I don't know exactly what. So then we went across to my aunt and uncle's, the ones who are here, and they were pinned in their house. They weren't hurt but they couldn't get their doors open and couldn't get out and of course he is in a wheel chair and they had gotten on to the bed when they knew this storm was coming—he felt safer in the bed than he did in his wheel chair. So their house was completely demolished and my mother's house was also gone and so, this house was the only house in my family, so, I said—they wanted to know where they could go and what they were going to do. So I said, "Come on up to my house." So I brought them up here and I brought my uncle and my mother and then I got them settled as fast as I could.

I nailed up the windows over there and mopped up some of the water that was in this room and went up into the attic and got a coal-oil lamp, and we didn't have any heat. It wasn't too awfully cold—just a damp cold, though, so then I went to look for my aunt who had done down to see about my uncle's mother and family. So my sister and I went down—we drove down—by that time we could drive down as far as the school house. So we got out there and started weaving and winding our way through all the different entanglements that were all over the street, and in fact you couldn't tell where the streets were and we couldn't tell whose house you were in front of, or where we were going. But, anyhow, we ran into my uncle and he helped us get over to this house where my uncle's folks live and his mother and two sisters and one brother had all been taken to the hospital and my aunt had gone along. So we came back and everytime we would see anybody we would hear that somebody else had been killed or was seriously hurt, but all through this, I didn't see anybody that was hysterical and—I say all through this—because I saw quite a lot before the night was over.

We came back here and we told my uncle about it and he said—he wanted me to go to the hospital on account of his wife—that's my aunt—so he said, "She is not very well and I don't know what condition they all are in," so I said, "All right," and I have two sisters who live in Little Rock and I wanted to call them and tell them that we were all right because we knew that they had broadcast about the disaster. So I had started to Searcy and I had two or three other people with me and my sister and this one girl—we went by her house and she said—she called to me—and I stopped—and she said—I said, "Are you all right?" She said, "Yes, but George isn't." George is her boy friend who had been for several years—they were both in their fifties and always lived across the street from each other and so in the storm she had gone across and had found his mother dead and all the rest of the family seriously hurt and she had gotten George in a car and had sent him to the hospital, but she didn't know which hospital

or how bad he was hurt and she couldn't hear from him. And by this time—it must have been around nine-thirty—so she wanted me to see if I could find him. I asked her to go with me and she said she would and she got on her coat and got out to the porch and she decided she couldn't do it. So I went on and we looked for my Uncle Dan and my aunt and their family and we first went to the Hawkins clinic and they had received people there so fast that they had no record or list of people, and when you asked about a certain person at the desk they just told you to look and see if you could find them. And most of the people were from Judsonia and a lot of them we recognized and there were an awful lot we didn't. They were just all—you just sort of had to weave your way through and of course the lights were out there. Some places they had temporary lighting and some places just candle, and we looked all over there and we didn't find any of them. Then we went on over to the other hospital. We looked there and others helped us look there and we didn't find these two people we were looking for but we found a number of other people that we didn't know about from Judsonia. Some of them knew that their mothers and fathers had been killed and their children and different things like that. Then we went to three different places.

In Harding College they had set up three temporary hospitals in the dormitories and we still didn't find either of these people. We went to the Legion hut there and they were supposed to have some sort of a record and that is where I found my aunt and later on we checked at the morgue and found my uncle's mother. Then we left this George's brother checking for him and he was finally found at the first hospital that we went to in a corner, and he was in such condition that we didn't recognize him, and he wasn't recognized or identified until sometime in the morning and then two days later he died. This couple had been married for one month and had gone together and had been sweethearts for probably twenty years. Of course that is a very sad experience.

After we came home—which was about twelve o'clock—we found that our other two sisters from Little Rock had gotten up here and they were more frantic than we were because I guess maybe we were in sort of a state of shock. But we weren't frantic and I still hadn't seen an hysterical person through all this—even at those hospitals—people were going around just looking—just searching—for their family and their friends, and no one was crying or showing any emotion at all—they were just as calm as they could be. So we came home and of course we were all so excited and by that time I think I had about twelve people here and so we finally fixed places for us to sleep and we went to bed, and about four o'clock none of us had slept at all.

This cloud came up and there was just a continuous lightning in the north. I suggested the storm cellar and when I did everybody hit the floor at the same time and put on their coats and got this crippled uncle out and got him to the storm cellar—which was about seven miles out in the country. That was the first time my mother had ever been in a storm cellar or any of my sisters. I had been in it one time before in my life, so you can see what an effect it had on us. Finally we stayed there until about five-

thirty or six o'clock and by that time we could see a lot. Then we drove to Bald Knob and saw a lot of the damage up there and bought an oil stove and came back home. We were all more or less nerved that day--finding--it was from being up all night--shock--and I don't know--it is hard to explain just what that next day was like. But I think we all experienced about the same thing. We all just felt like it hasn't really happened--it's just a nightmare--it's just something that will be gone. In fact, I still feel that way at times--I think--I go to town and I come back--and I think, "Well, that's not right--that will pass on--it's just a bad dream," or, "It will be all right tomorrow," but of course it is going to be several tomorrows before it's very much better.

I: When did you first realize that there was going to be a storm?

R: Not until the wind had built up, until it was actually bending the trees--well--I just had no warning of it. It would be just as if we would have a storm this minute--I would be as unaware of it because it was just about this dark except that the clouds were a little darker, but as far as the lighting, it was just about like this. I had no warning at all and after experiencing one I don't know if people will be able to go through another one like that or not, or what they would be like if they did have to experience another one. But it's remarkable what--how people--well, I guess one word--snapping out of it--I mean they are already trying to rebuild their homes and trying to overcome the hardships that are before them. It's an awful big thing because from this standpoint this was a poor town before this happened and most of the people who live here are people who work by the day and by the week and they had lived by the day and by the week and any disaster would have uprooted them, and for them to ever really get adjusted again in Judsonia I feel that there would have to be some factory or some industry, small industry, come here. I just hope and pray that somebody will be kind enough and big enough to send us something like that because now I feel that for people to get readjusted they have to have something interesting to think about and be busy. I know from my own experience I think I would have lost my mind if I would have had to stay at home this last week, but as it was I was needed down at the Center. I have worked with the Salvation Army and the Red Cross and I really felt that I was needed down there. I know I have readjusted myself quicker and better than most people in that I have been so busy and I have really felt that I have been needed. I think anybody has to feel like they are needed or life isn't worth too much to them. I don't think I have anything else that's very interesting.

I: Why do you think you did what you did?

R: What do you mean?

I: Well, when you first realized that there was, well, what as really going on?

R: Well, I guess I did what I did because there wasn't anything else to do.

I: Well, tell me again what you did.

R: Well, was it actually a bad storm? Well, I don't believe I know exactly what you want me to tell, just exactly the physical things that I did—I mean like walking into the kitchen twice or running, or hurrying wherever I went?

I: Why do you think you did that?

R: Well, I went once to try out the gas and I am sure I had the feeling that we were going to be in a bad storm and I didn't want fire started. I went back again to blow out the candles, and then—this is a very queer thing that I did—I have this antique lamp that was sitting on that table over there and some time during the storm I got that and took it into the bedroom. It was right after that I started out the door and my husband, he wouldn't let me go because he didn't feel that it was completely over. So I went to this table and got this lamp and took it into the bedroom. That was about the silliest thing I ever did, and then all this time that I have been telling you about myself, my husband had gone on after we had met my mother and my sister. He had gone on down town and in the store where he had made his purchase just before the storm—we judge that fifteen minutes after the storm he was digging the proprietor out of the store and his wife and two children out of the brick. The owner, the man was killed and his little girl also. What they had done—the father took one child and the mother took the other child and they laid down over them and they really think when the father died and relaxed he smothered his little girl. That's very sad and I hope the mother never finds out about it because she is doing quite nicely. She is still in the hospital with a broken pelvis. Then my husband went over not very far from there, and picked up a woman who had blown for quite some distance, and I guess he helped at least eight or ten people. He helped get them out and then he helped get this woman out who had been in this variety store and her husband was sitting outside in the car and his car was just beaten into a pulp—all the back glasses were shattered and the top was just sort of smashed, you know. He wasn't even hurt, only had just a small scratch here on his hand. She was killed or they had an autopsy performed and she died of heart trouble and she also had cancer real badly, so that was another thing that was an oddity.

The day after the storm, there were still several people missing and at that time there were about thirty-five, I guess, dead, and our cemetery had all these large trees—were you here before they were cleared away—well they were—it's a real old cemetery and these trees were old and large and every tree in there was uprooted and they couldn't dig any graves at all until they had cleared these trees away so they worked Sunday—let's see—Saturday and Sunday, clearing all these trees off and digging graves. Monday we had this mass funeral which was a horrible experience because I never witnessed one before. I don't know—I guess maybe there's been several people who have, but that was my first experience and, I hope, my last. When these people came in they just started looking, you know—they had these bodies under this canopy and they had—you just had to walk around, you know, and look until you found your loved one or your friend, or whoever you were interested in. Of course, it's such a small place—you are interested in all of them, because you knew them all. It was such

a horrible experience because they had opened all the caskets and so many of them were almost beyond being identified. In fact, they buried one person here that was misidentified and I understand they will have to dig this body up and re-identify it. It was horrible that they did open these caskets, but the reason they did--there were so many and everybody wanted to be sure that the person that they were interested in was put in the right place. It was a terrible experience when these loved ones would find their loved ones because it was such a shock, you know, seeing them in that condition. Then they had this funeral and then after the funeral services were over each little group took their body and they went to their grave and a little while after they had all left this large canopy and there was a little group here, and the cemetery was just spotted, you know, with small groups of people at each grave and there weren't too many people at this burial because there weren't too many people left to go. The local people either had some body in the hospitals or they were hurt themselves--there was some reason why they couldn't be there, being local people, and most of the people that were at this burial were out-of-town people. They were relatives, you know. So I went with these friends of mine who had lost their mother and just a few minutes before they went down to the grave with the body, the preacher who was going to say the prayer at the grave, had a heart attack. I didn't know that, in fact, I didn't know what arrangements they had made, so this son-in-law--this grandson of the grandmother's had to take charge of the funeral--of the bodies--because one other girl and I were the only ones outside of the immediate family--that is, children and grandchildren--and so this--I thought it was odd that this grandson took charge. In fact, he was--he married the granddaughter of this woman who had been killed and he took charge of the body and he said that he thought there should be a prayer but he was sort of awkward about it and you could tell he wasn't a preacher. He didn't know how to handle the situation. The son of this mother sent down and said he would like to pray the prayer and he prayed this prayer that was the most heart-rendering thing I have ever heard. In fact, you can imagine a son praying a prayer at his mother's grave and there was no one there except the immediate family and it was a very heart-rendering experience.

Of course, that's just one of the many experiences like that, I mean, that is not unusual because nearly everybody had a gruesome experience of some sort. Do you have anything else you want to ask me?

I: What did you think was going to happen to you?

R: Well, I didn't have the feeling that I was going to die. I had--I felt like--I wasn't really concerned about myself, I mean I didn't think I was going to be hurt, really. I was just scared. I don't know where you draw the line when you--usually when you're scared, you worry about yourself--but I wasn't and I might not--might have the same feeling again, but I don't know, because now it's, you know, a dread and a horror than before and if you have never witnessed anything like that, you just don't know what it is.

I: What did you think was going to happen to your home and family?

R: Well, I didn't even think about my home because my chief concern was my mother and my sister. I wasn't—I had the feeling we were going to be blown away but still I kept thinking about them and I didn't think I was going to be killed and I didn't think my husband was going to be killed. I mean, I didn't have that feeling. Of course, you didn't have time to really think things out and know exactly, but I know I wasn't—I didn't have that fear but I really felt that the house was going to be blown away but I might have had a different feeling if I could have heard anything. As I said before, I just don't feel like I heard anything after the storm really started.

I: What did you think about when you were in the house with your husband?

R: You asked the hardest questions to answer. Well, all I could think about was that it was going to blow in here and that the rain—that we were just going to be—I had heard my mother talk and this came to my mind then. I had heard my mother talk about a storm she was in one time—it blew the windows out and it just blew water clear through the house and I know I was a child and she used to tell that and it always stayed with me. When that window went out and those drapes were blowing, you know, the rain coming in, I thought that, you know, to me that is what a storm is like, because she had told me that when I was small about her experience in the storm, and to me that was my idea of a storm for the windows to blow out, the wind to pour in and the curtains to blow, you know, and get wet. But you have such an insecure feeling, you know what I mean. This is the first time that I have ever experienced anything like this—I mean a disaster like this—but I had two or three very sad things happen in my life and I always had the same feeling and I guess most people do, but it is such a feeling of insecurity, you know, you don't feel secure anywhere, with anybody or anything. Maybe I'm getting off the track a little bit, but most people have a fear of cancer, you know, and I always say that insanity is my biggest fear, so always when I have anything happen to give me that gives me this insecure feeling, I always think, "Well, maybe this is before you go insane," or something like that. I know this all sounds kind of silly but I mean that's just me—that's—still last night I had that feeling, you know—it sort of comes and goes. I don't if you are around people—it helps—and then again it doesn't help. I don't know what the solution is to that but it just has to wear off—time is the only thing and having your mind occupied. If I couldn't do that, why, I do feel that something tragic might happen. Well, I really feel like that; I have told about all I know that would be of any interest to you.

I: You were telling me about a story a while ago about your husband.

R: What was it?

I: You said something of interest your husband had to tell.

R: Oh, well,—it was all the different things that he did that night. About getting people out and this girl I was telling you—these people who own

a grocery store and he was killed, and he and the daughter was killed and the wife was conscious all the time. My husband was the first one that she heard and the first one that she saw and she was conscious all the time. She said--she told my husband that her husband was dead. She said, "Johnny's dead and I think Joan is, too." -- that's the daughter--and she said, "Don't--I am not really spared--get Mike,"--that was the little boy. He really had an experience there because he picked the little girl up and he said that she didn't have a bruise on her at all and he felt that if they had had the time or the forethought they would have used artificial respiration on this little girl and she could have lived, but they didn't do it because they were after the mother and the other child that were living. They knew they were living and this girl has been very brave. Everybody that has known her has just marveled at her courage. She says that she feels that it was all for a purpose and that God knew that her husband would be lonely so He sent the little girl to be with him. She has the sweetest way to look at that, and it's things like that that have helped other people so much to bear the little things compared to hers; and along with losing her husband and her child we found that she had lost her home and the parents of the boy who was killed were not hurt badly, but their home was just completely demolished. They had a beautiful home and car and that was all demolished and none of them have a home to come back to and the mother and father of this boy who was killed are quite old. So I don't know what they will do but the town and the Red Cross are building this young mother and the child a home and I am sure that the Red Cross and other organizations are willing to do a lot for the people here, at least we hope so. If they don't, it will be impossible for people to build back because they don't have the savings to do it and they don't have the income. Of course, with all the business section down why people won't be working at least for a while. I feel like if it isn't an outright credit to these people that homes could never be built even on a loan because it is going to be so long before they are really able to do anything financially.

I: You were talking about the children--how did they act?

R: Well, I don't know. I wasn't with my children right after the storm, but the different ones that had talked to me said most of the children were calm. Some of them were excited and cried and screamed, but I have a neighbor that has a little girl and she then had a friend visiting her when it happened. They got on the bed with their mother and she said that the children were just as quiet as they could be and their eyes were huge but they didn't say a word and didn't move. She said she knew they were scared to death but they didn't cry or do anything--they were just real quiet and still. I was talking to some children down here today whose mother was injured and their house was blown away. They just found the children and whole family all over town practically--that's over in the depot section of the town--and these children are still scared, you know. They just can't stand their mother to be out of their sight and she is out of the hospital now and is with them and they won't go into another room, you know, and play by themselves. They are just scared to death, that's all, and I don't know how it will affect them but it will have some mark on them some way.

Case 3-10

I: How did the other people act?

R: Very calm and collected. This one woman had her arm broken and I talked to her for quite some time and she asked me what I thought she ought to do about her hand and her arm. But I said it didn't look too bad to me. I said, "Well, you should have something put on it," and in a little while her son came out and took her to the doctor, to the hospital, and her arm was broken so—usually when anybody suffers a broken arm, I mean there is some shock to having your arm broken—and she was past sixty—this woman was—and it seems to me that the old people here are in worse shape than the younger ones. It seems the younger they are the better they react to it mentally, but I know several real old people and they are so torn up and their houses are gone and I have asked several of them if they are going to build back and they say, "No," that they are too old. This one lady said it's too bad it didn't take her. She said, "I don't have anything to live for and my life has been fulfilled and I am ready to go," and I know a great number of them feel that way because now they will have to live with somebody else and more or less be a burden, you know. I am sure most of them would have been glad if their time had come, but I think really the—old people are the ones who are suffering more mentally than the other ones, or at least that is my attitude.

I: Have there been many outsiders through town?

R: Oh, yes. The next day after the storm—well, immediately after the storm, the State Police came in and they set up road blocks at both sides of town—all around town. Then the National Guards came in and guarded all the houses because everything was just open, you know, and people who had valuable things in their homes were just exposed, so they had to be guarded. Then the State Police were at the road blocks from then on, for a week, no one came into the area who didn't live here and the people who lived here had passes to get in and out of the area. The next day there were cars lined from here to past Bald Knob which is about five miles—its six miles wanting to get into the area and down this way as far as you could see there was this line of cars. It was almost impossible to get from here to Searcy and back. It took you about two hours and one-half to drive from here to Searcy, the traffic was so congested. Sunday I think it was even worse and finally they found a country road over here that ran into town down back of the cemetery where people had filtered in here and the town was just full before they realized it, you know. So finally, though, they stopped that, but you would just be surprised at the people that had been here to see us that we never—well, a lot of people I just never would have thought about again in my life, you know. I just knew them by looks and they were the same way about us and probably would never have bothered stopping or maybe never thought anything about us any more if we hadn't happened to be in this disaster area. I said you sure did feel popular—we were getting so much attention because everybody we ever knew came to see about you but most of them came because there was no communications here and we were just paralyzed as far as communications here. Then we had these relatives from Texas who heard the disaster broadcast and this cousin who is an R. N. and her husband who is an undertaker

just loaded their car up with bedding and surgical supplies and medical supplies and water and flashlights and they started for Arkansas. They were so sure, you know, that with three houses all in a different place that some of us would be hurt for I believe they said the broadcast was that the town was leveled. I believe those were the words they used and so they were quite amazed, in fact, they were more or less in shock, I think, when they realized that none of us were hurt and they had to come through town. Sometimes I think the people who were away from here and had to come here were in worse shape, I mean as bad shape as we were. I had this brother who is in Mexico and he had written to my mother a couple of weeks ago that he would be home before long and he hadn't arrived and so when this disaster happened we immediately cabled him, or sent a radiogram, I guess, what had happened and we were all right because we just had to get word, you know, if we could before he heard it. He was on his way home all this time and didn't know anything about the storm so he has been employed down there for several years now but he comes home every year and so he flies from New Orleans over to Vera Cruz and he stores his car there. So he had gotten there that morning early and had gotten into his car and driven from New Orleans that day and he got here about eleven o'clock that night. The State Police stopped him and wouldn't let him come any further and so he told them that his mother and sisters lived here and that he had been away for a year. They said they were sorry but they just couldn't let him go in. I think they didn't believe, you know, what he was telling them and he didn't realize, and he said he realized when he was up the road that they had had a storm but at night he couldn't see too much without any lights anywhere, you know. Finally, the State Police said, "I'm sorry--there is nobody down there in that town," he said, "it's just all blown away," and he said, "If your family did live there, I am very sorry--they don't live there any more--that town is just wiped out." Well, my brother said that he was stopped and he couldn't stay there and he told this fellow, "I'm going--I have to --if you go with me, that's all right,"--so this fellow said, "Well, here is a list of the dead we have so far. You can look this over." So my brother looked at one name and he thought he couldn't look any further and he finally read the list and our names weren't on it. So the State Police finally let him through and he drove down to my mother's house which was a total wreck--no one there--or no one anywhere down in that part. Then he turned around and he said he looked for a light here and he didn't see any, but we had one but it was just a little tiny coal-oil lamp. So he got back up here and he came to the door and he said he just couldn't open it. He knocked and I went to the door and I said, "Who is it?" and he said, "It's Joe." I didn't even recognize him--his voice was so little, and I said, "Joe who?"--and he said, "Well, your brother Joe." So I opened the door and he said, "Are you all right?" But he just couldn't get into the house and it scared me about him. I thought--well--I didn't realize that he was, you know, in such shock, not knowing about us--that I thought something bad had happened to him. Well, we almost had another disaster but he really,--that was just a terrible experience for him. He just said that he just knew that some of us had been killed, you know, and I guess we are the most fortunate family in all of Judsonia.

I: How about the things you do in your every day life—how were they most upset?

R: Well, my life has been so changed since the disaster, I don't even know how to answer that. You see, I don't have any children—I did a lot of—I made a lot of braided rugs this winter. I worked on one for a long time and I did a lot of sewing and just things like that and I kept house. You couldn't tell it by looking at this but since the storm I have had my mother and what she salvaged from the storm—a good part of her things—and then I have had my aunt and uncle here and some of their things that were salvaged. Really, we are just piled up and just more or less existing and having a place to exist—glad to have a place to exist—and then I have been going down to the church every day except—did I tell you on the third day what I did?

I: No.

R: Well, I was sick all that night so the next morning I thought, "Well, I'll get up. I don't think I'll be sick at my stomach any more." I felt pretty good and I got up and was going to take a shower and get dressed and go down to the church and work down there because I knew they needed me. I felt that I was going to faint—I was in the bathroom. I thought, "Well, if I get to the bed I believe that this will pass on." So I opened the bathroom door and fell out on the floor. My mother and my aunt were here and it just about scared them to death. They got water and poured it over me and got me up and held my head down or raised me up and held my head down and they couldn't get me to come to. Finally my aunt came out and they had a road block set up right here in front of the house and she hollered at this State Police and told him that her niece had fainted and could he come up and help get me on the bed. So he brought some other fellow with him and they came up and they had these ammonia, or whatever it is they give you when you faint. It's ammonia, I'm sure of that. They picked me up and put me on the bed. My mother said I had fainted for ten minutes. Of course that's a long time to faint. I don't know if it was that long or not, but I was more or less in a high faint for oh, four or five hours, I guess. I was, you know, just relaxed, and if they had just let me go to sleep and sleep I would have been all right. But they didn't; they didn't want me to sleep so they kept waking me up, etc. Anyhow, when the doctor came and the nurse, they felt like it was just a natural thing that would happen after a disaster like that. They said they felt I was one of many who had experienced the same thing, but so far if there has been another case similar to it, I haven't heard of it and that's been a week ago now. I don't know whether the excitement had caused that or not, but they seemed to think that it had. But I feel fine now.

I: You said you had been having some trouble, some sickness you think was caused by—

R: What do you mean?

I: You had been sick at your stomach and—

R: I was sick at my stomach all night. Vomiting all night. The next morning was when I fainted. I just blacked out—that is what it was, instead of fainted. But this was the third day after the tornado. I hadn't slept any the first night, not too much the second night. In fact, until I fainted, you know, or blacked out, well, I don't think I had really ever slept, just relaxed and slept, but that seemed to relax me and then I had—it wasn't a shot—but some sort of a pill. I am sure that's what helped me relax. I have a spastic colon, too, so I am sure that had something to do with it—you know, your nerves have everything to do with spastic colon.

I: What other sort of problems did this raise for you and the town?

R: Well, my biggest problem now is getting my mother situated back into her home. Her home was declared a total loss. You asked me what problems this caused me—wasn't that your question?

I: I believe so.

R: Well, my biggest problem is getting my mother settled again and her home was declared a total loss. Right now we are trying to decide whether to salvage any part of the house or not or finish tearing it down and start from a new foundation, or what to do. She's a widow and lives alone with the exception of weekends when my sister is home from college and that is—my biggest problem is to get her house built and to decide which way will be the best way. There are people here who had their houses leveled up by these men and put back on foundations—houses that had been completely taken off the foundation. We just haven't decided yet how we are going to rebuild her house. That is our biggest problem now. She said the other day that she wished that she had a pick-up truck that she felt like if she did she could haul off so much of the junk that was blown around her house and then when she started building she would have that to go after—her building materials and things like that. My mother has lived on a farm most of her life and of course she knows more about pick-ups—she realizes their value more than a lot of people.

You asked me about the problems of the town. I can't think of one problem that they don't have—they really have every problem facing them that could be possible. The only thing that we can say we have left are our utilities that are under the ground—that's water and gas—and other than that you might say we will have to build our town from the foundation up.

I: Have the problems been handled well?

R: Very well, considering that it has been such a short time. All of our churches were insured for enough to rebuild and our bank has—we are sure that our bank will be rebuilt and it is being rebuilt already. Our schools have been granted enough money to rebuild a complete new system so I feel that with our churches, our schools and our bank and our postoffice going to be rebuilt, I feel with those important things built, that our town will be rebuilt again even though the highway has just missed this town. Just a few months ago everybody felt that this town would be just more or

less a ghost town then, and since then—the disaster here, the people, I think, have an awful lot of courage to build back when really we don't have any industry or very much to offer the people.

I: After the storm, where did you get most of your information about what had happened?

R: From the people I saw. I went, after I was—went to see about my mother and my sister—I went to the hospital, you know, and then when I came back home my mother was just frantic—well, how is this one—how is that one—did it—. We, the people on this side of town, didn't realize that the other side of town had blown away also and the people over there felt that they were the only ones blown away and one kept waiting for the other to come over, you know, and I don't know why we all had that feeling but I didn't feel—I have some real good friends that live over in that section—and I didn't feel that they were hurt and I had the feeling that when they hear about it they will be wondering if we are all right. Of course they were harder hit really than we were over here—about as hard, I suppose.

I: Was most of the information you got true enough?

R: Well, most of it. Of course I had been working down at this information desk and I have been working with the local people, trying to help them find what they wanted and helping them make calls and answering wires and things like that. I think that I have heard more rumors there than I would have—or that the ordinary local person heard, and I am sure that the amount that I heard was small compared to what it could have been. In fact I think of only three tall tales that I heard while I was down there and one was about this car that was supposed to have been blown up into this tree. It really was—I saw the car—and several days later they said they found this woman who was just sitting in this car and she was dead and the car was a solid piece of metal. There was nothing to that. Then some one started a rumor that they had found three unidentified people about the third day after the storm when they were moving some of the brick down in town and that got all over, but there was nothing to that. And then we had had a lot of rain and over between this part of town and the depot section of town, there is a place where water stands for quite some time. That water had begun to move out and they spoke about several bodies in that but that was a mistake and as soon as these rumors reached us down there, we would check with the funeral homes and every authority that we could, so we could stop these things because I think that's hard when things get started that way. People might get panicky if those rumors go around too long.

I: You mentioned that you had been—have you taken a part in the rescue or relief work?

R: Well, yes, I have been a local relief worker, I could be termed as. We have had this, we have worked with the Mayor. In fact, the Mayor's wife and I have had charge of this desk down at the Methodist Church and we have worked

with the Salvation Army and with the Red Cross. You see, not having any sort of communications for a while, it was hard for strangers to come here and help the local people very much because they would come in and maybe they would want something taken to a certain place and, well, they didn't know, the strangers didn't know where it was and we would get someone to go with them or take them themselves or do something like that. Then we would have all these wires for the Red Cross, you know, coming in and asking about their people. Well, in such a small place when you have lived here as long as I have, you just know about everybody in a short while, and I didn't have to go out and see the people, I would just send a wire right back and tell them the condition of the people that they were inquiring about. I took several phone calls and I was ready to take this one from Tokyo--this fellow was in the army and his mother and brother was killed and their house was blown away and his father left here and he was in Little Rock at the time of the storm, and he was calling his father from Tokyo. I was going to talk that night had the call come through but it didn't come through until the next dayso the father got to talk to him. It's just different things like that that local people are the only ones, you know, that could have done it.

I: How has this relief work been--has it been carried on well?

R: Oh, it's just been wonderful. I have never seen such wonderful spirits in my life. In fact, I just didn't know that people did such nice things for other people. We have had people come here from almost every state in the Union, I do believe, and send contributions. So many of them are just anonymous. They don't want any thanks or publicity from it. Evidently, we realize it more now, that people get such a satisfaction out of doing for others and that seems to be the spirit that people have taken here. I know this one day two ladies came in and said that they wanted to do something for a family, but they would like to know the family they were going to help. So that day we were quite busy and it seemed I couldn't seem to think where anybody was or anything, so you didn't know where people was, you know--their houses were gone and they were living just first one place and then the other. So I said, "Why don't you come back," I said, "Why don't you get in your car and just start driving around over town and go over toward the depot section." And I said, "You will see these people out around in the yard, you will see people--you just stop and talk to them and maybe you will see someone you would like to help." I didn't think much about it and I mean I didn't think anything about it after they were gone. It was just something I didn't have time to do that day and it wasn't too long really when they came back and they were the happiest two women I have ever seen in my life. Honestly, they were just bubbling over with happiness. They had heard of this particular family--there were six children in the family and the children were all hurt in some way. The mother and father seemed to have been spared and the children were hurt in some small way--none of them were hurt seriously, but they were really a needy family. They had this small baby that was in a incubator when this disaster happened--it was before disaster had happened--and so the baby could be brought here but they didn't have any place to bring it and these ladies had heard about this family being over here, you know, how things like that go, and so they had said on their way over here how they would like to help a family in those circumstances. So it so happened

that when they drove over to the depot section that they stopped at this family's house and they didn't know the name of the people where they stopped and they said they felt that they had been led to this family. It was the Methodist Church in Searcy, that they were representing so just this afternoon this lady came back and she said--I said, "Well, tell me how you are getting along," and she said, "Oh, really, I shall never forget you. I feel like that you had something to do with bringing us to this family. Our whole Church has gotten such a big satisfaction out of helping this family. We really have done a lot for them and are going to do a lot more." She said that nearly every day someone came over here with something and they had made educational arrangement--they have done the nicest things for that family that they, you know, they had never heard of getting opportunities to do things that, you know, they never would have had, so it really does your heart good seeing people doing things, when you know they really want to do them just for the soul's satisfaction. I think that most of the things that have been done for people here have been done in that spirit and I am sure they have been received that way. I know that you can tell by looking at people when someone does something for them, they just looked amazed, you know, that they are being helped and don't have to pay for it because they never had to ask for actual help--or--not that they were financially able to do much for themselves. But I guess in other words you have heard that saying--Some people are too proud to whitewash and too poor to paint? Well, that's kind of the way this town has always been. Even though they did need it, they wouldn't ask for it.

When this first happened, the Salvation Army had--they served meals--and they also had this large supply of groceries that was for anybody who needed them and had a place to cook. And there were some people living with other people and they would have had to buy groceries wherever they were living or pay part of the grocery bill. They felt like they should. I got so mad at people because they wouldn't take those groceries--I just begged them to take them. "Oh, No. Somebody may need them worse than I do--" that would be their answer. I got so disgusted. I don't know why they finally decided to take them but finally they--in about the third day--why, they decided to come in and get some groceries. There's still a lot of people that need help that won't come and get it. I guess you hear that everywhere--that they are so proud and they feel like somebody else may need it, you know, worse than they do. It seems everybody feels like they are better off than the next fellow--that they have more to be thankful for than the next fellow but I really feel that it has brought the town closer together than it has ever been before.

Did I tell you about the experience that this Salvation Army girl had--finding the book at the schoolhouse?

I: No, I don't think you did.

R: Well, one day she was up there and she was just looking over the school. She noticed this book lying on the ground. It had the backs torn off and it was just folded half back, and just laying like, the middle of the book

was like that and so the mud and rain had sort of beaten it down into the ground. She just took her toe and kicked the book up when--just curious to see what book she had found there in that mud--and when she picked it up and turned it like this the heading on one page read, "When the Typhoon Blows" and then on this other page it read, "All Men are Brothers,"--"When the Typhoon Blows--All men are Brothers," and she brought this book back down to the church. It really gave you a peculiar feeling when you read it. She also picked this paper up at school--that was quite a coincidence--it was just something that a child had written. It wasn't a quote at all, it read, "The wind blows high, the wind blows low, the wind blows East and the wind blows West, but oh, how it blows." It went on about the wind but she thought that was a peculiar thing, too, and we all did. We hoped to keep this book but something happened to it. I believe Life Magazine wanted to write a story on that book but it disappeared one night, so I really don't know what happened to it, but we wanted to keep it for the school. We thought it would be an interesting thing to have.

I: When did you first find out that the storm was as big as it was?

R: Well, I think that I am still realizing that--I mean I have seen the town as many times as anybody that lives here, but every time I go to town I see something new and it makes it bigger to me. I mean, instead of it getting smaller, it gets bigger and it seems like every time I go through the area I have missed something that seems big, if you know what I mean. It's an odd way to answer it but really it's too big yet for me to really visualize and that compared to something like this, I have always heard people say that they wish they had a million dollars and I have always thought--I wonder how long it would take them to visualize a million dollars, you know, if they had it. In other words, how long would it take them to realize what a million dollars was. That's kind of the way I feel about this tornado, that I still don't really realize what it has been. Don't you have that feeling when you go through the area? I mean, no longer than you have been here, do you feel that you didn't see it all or, that its larger the next time you see it. Do you have that feeling?

I: Something like that.

R: Maybe I'm not supposed to be quizzing you.

I: Was the tornado like you expected it to be, or was it different?

R: Oh me, I don't know how to answer that either. Well, some people have the feeling that it blew, you know, in one straight wind, but I don't have that feeling. I feel that it was a whirling wind and that there was some sort of a suction in the center. I feel that this particular place right here was on the outside. In fact I knowit was when structures much stronger than this, you know, went down. I know that we were just on the outskirts of the tornado and that we weren't really in it.

I: What did you expect?

R: Well, I expected a rain storm. That's what I expected. You mean, what, if I had know, if someone had told me we were going to have a tornado, what would I have expected?

I: Yes.

R: Well, I'm sure that I would have expected destruction and I am sure that I wouldn't have expected what happened—I mean—as big a thing or as wild a thing, or as long a thing. I understand that forty miles—forty miles distance—and I don't think anybody could have visualized this that hadn't been through one before or if it had been their business to study these sort of things—I don't think that—I mean, I never could have visualized what a disaster like this would have been.

I: How did you feel about it in general?

R: Well, I feel like it is something that is going to take a lot of time and all and it's something that we will eventually get over. But it will be an awfully long drawn out hard thing to overcome. I feel that if we should have anything else, any other disaster happen within the next year, that, well, I don't have—I don't know what it would be like. But I just don't feel that the people in general here could survive it. I feel like I might but I don't feel like everyone could. I guess I feel like I am a little stronger than most people but that's my general opinion of it.

I: I'd like to know why you feel like you could.

R: Well, I feel that way because I didn't lose anyone in the disaster. I didn't lose any earthly possessions and I wasn't in the hardest hit area. I feel that way, sort of like you would, and you were in Little Rock, and you probably feel like you could stand another disaster better than these people in Judsonia. Am I not right? And I feel like that I could because I don't feel that really I have gone through as much as most people.

I: After the storm, did you get plenty to eat and drink?

R: Well, such as it was. Of course, we didn't have any water. We had some creek water and that reminds me—I hope I take the typhoid shots before my time is up—and we had gotten this small oil stove about five o'clock the next morning after the storm. We had this crippled uncle here and I realized that we were going to have to have food and a little heat in the house for him. Otherwise we probably wouldn't have bothered too much about a stove because there are no children in this family and no real aged people. But with him being here I guess it has been a blessing that he has been here because we have had to stay here more and sort of look after him and have better meals and heat and everything here. Otherwise we would probably just all gone out and stayed as long as we could have done anything. So in a way I feel like that everything maybe has happened for a purpose. I am sure we are not supposed to question it and I really feel that we were all spared for some purpose. I feel that these last two weeks maybe that I have—that I was supposed to go down and help these people because as I said before,

there's been this other girl, the Mayor's wife, and I, have been the only local people that were left. I mean that there is nobody else--nobody else even offered to come down because they couldn't. They just weren't here. When you think about it--you felt that you were kind of needed, and I really have felt like that. There will be something come up in my life yet within a short while, that I really will know that I was left here for some purpose. That may be an odd way to look at it, too, but when you look around you and see all the other homes and things that have been destroyed and you are left, it really makes you think a little bit. I heard this fellow say, who was in the army, and he saw Hiroshima and Nagasaki after the bombings there, and he said the only difference here was that we didn't have any fire. But he said that as far as demolishing the buildings and homes that this was just as bad as it was there.

I have thought since then, I just wonder if we had gotten the publicity on it, if people know about this place like we did about those places there, and of course with television and everything there they have made the most of this disaster. I am sure they have because practically everybody in the town has been televised and they flew one family to New York to be on television and all of the noted magazines have been here, oh, for a week, I guess, and two television companies, and I don't know how many different people, I mean how many different interests there has been here. Of course you are another interest, but I hope that whatever you all find will help somebody else in a disaster like this. I don't know exactly what your findings will be and I am sure you don't either yet, but maybe they will be of some benefit to somebody else.

I: How did you feel about other people coming in?

R: Well, every time somebody would come to see us it just amazed me that they even thought about us because we weren't hurt and they just looked so shocked and sort of peculiar-like when they would get here that you could tell they had been under a strain, you know, worrying about us. It made you feel good that they would think about you, but still it would amaze me every time someone came that they were thinking about me but all these sightseers and people with their cameras and these souvenir hunters and all of that, I got pretty fed up with it before it was all over. I guess that's just human nature for people to be curious, but still when you're the victim, it's not too funny. I think that it was sort of overdone here but fortunately it didn't matter too much although we just got tired of it, you know, day after day.

I: Did you see anything wrong going on?

R: I don't know what you mean.

I: Well, you know, people going--

R: Looting or something like that? No, I didn't see anything but there was one fellow who was supposed to have his cash drawer cash register opened

the night of the storm but that isn't authentic. I really don't know about that, but as far as people losing their personal belongings out of their homes, I don't think they did.

I: Do you still think about the storm?

R: Why, sure. We can't talk about anything else. Before this all happened we were great basketball fans and we had just won a county, I mean, a district tournament and had gotten into the State tournament and we were quite proud of our basketball team and that was all we could talk about. Since this has happened I haven't heard basketball mentioned and at night when we are sitting here, why, all we talk about is something new or something going over; it doesn't have to be new; we just reminisce this storm and I don't know how long it will go on but you don't know anything else, it seems, to talk about; you just automatically start to talk about the storm.

I: Do you think you have learned anything from the storm that might benefit somebody that might be in the same circumstance?

R: Well, as far as trying to protect themselves, I don't feel that I know anything to tell anyone because people were killed in all different circumstances here. I mean, in different places they were killed, outside and inside, in cars and out of cars, so as far as feeling secure anywhere, I wouldn't, in a cyclone. But I do feel that I could tell somebody how to readjust themselves, I mean, how it would help, and that is to find them something to do immediately and work at it and feel that you are needed and really stay with it and concentrate on your work, or have work that you have to concentrate on, and I think that would work for anybody, young or old, and that's the reason I feel that the old people are more disillusioned than the younger ones are for they don't have anything much to do but sit around and think about the storm and their circumstances, and I really would recommend some sort of work for any displaced person.

I: What are you planning on doing now?

R: Well, as I told you before, I have to get my mother's house built and get her settled again and then I'll resurrect my own house and I hope then that I can find some sort of work or something, maybe some welfare work, or something that will be a worthy cause that I can do. I don't know whether I will find that or not, but I feel that I will. I don't believe that I have anything else to do.

Appendix A-4

The respondent is a 29-year-old married man with two children. He works in the local shoe factory. He was on his way to a "picture show" with his wife and two children when the storm struck. They had just parked in front of his father's store, and the children were waving to his father inside, when the car was picked up into the air and the brick store building collapsed.

After the respondent realized that his father was under the rubble and beyond help, he ran to his father-in-law's house and helped rescue them. Although his own wife and children were not injured, his wife's mother, father, and sister, and his sister and sister-in-law were injured. He spent most of the night helping dig people out of the rubble. Later he discovered that his house was damaged beyond repair.

I: Well, I'd like for you to tell me your story of the storm.

R: Well, we just rode into town there, and went down to the postoffice, you know, to make a "U" turn down there. By the time we got down there I told my wife, "Boy! It's really going to rain." The clouds was just green--just like an old heavy rain cloud. So I pulled back up in front of my father's store and stopped. I had been working all day, you know. Killed my motor and idled my car and put it in reverse and locked it that way with my brake. About that time, why, the television set in Mr. R's store went bad and I wondered what in the world was going to happen. There come a big flash of lightning. There went the lights and that was about five minutes before the storm ever hit. I seen a television set go down and the clouds just start rolling over the car from behind me and it started down the windshield. I said to my wife, "Come inside!" I grabbed the kids and held them right down here, you know, and by that time we done being tossed around. What I mean is things done hit the car all at one time, bashed glass right on us and after that I never heard so much racket in a storm. It took the radio and aerial off and front ornament banged the door in I was setting against. Just like being under a bridge with a bunch of freight trains going across.

When it start getting light I looked up there and there was my father's store completely leveled. I was sitting out in front of it and the last time I seen him he was sitting on the counter waving at the kids. I don't believe from the time the straight winds hit to the time it completely stopped--was over four minutes. The actual storm--it didn't last that long. Just picked us up in the air. I know we was up in the air because the car was just barely floating, just like you was riding in an airplane--and set us back down--we was on top of a bunch of stuff--but it didn't move us ten inches--didn't turn us over or anything, but I know we was up in the air.

My wife said she seen the buildings when they went down. It was just as dark--ch, just as dark as could be--she couldn't tell how flattening--but she could tell they was going down. From where I was sitting I couldn't seen the buildings going down--it was so dark I couldn't seen them and then when it started getting light, why, I looked out across town--it--and it was just a blank area--just a big pile of wreck. Of course, I jumped out of the car then and by that time the rain was coming down in tubfuls. It just rained so hard the water just looked plumb muddy, you know, when the sky falls. I went out there to start to find him. It blowed him back, oh, about ten foot from where he was at. Of course it turned the counters over and smashed them down and just picked him up and turned him around--completely around from where he was setting--he was setting facing the north and picked him up and turned him around this way--facing south, and laid him down on the floor.

There wasn't no warning, no nothing--just one big flash of lightning. I never seen lightning like it until after it was all over with. It didn't even look like it was going to storm. We was planning on going to the

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"I." stands for remarks of the Interviewer.
"R." stands for remarks of the Respondent.

picture show and I think another five minutes I guess we would have been out of town going to picture show. I've lived in this little town all my life, I mean, I was actually lost. I didn't know where I was at because there was no land marks, no nothing, to go by. I started the motor just as soon as the storm was over, and I thought, "Well, I'll try to get down to my father-in-law and mother-in-law's house. Of course I started the motor and when I did I seen I couldn't go nowhere—the streets was just full of stuff, debris, and everything else. I knew I couldn't go over in that car. We didn't any of us in the car get a scratch. There was a woman right behind us, in their car, and she was buried in a bunch of debris and the car right in front was a total wreck. What saved us, I don't know. That's the first one I was ever in and I hope it's my last. It was really wild—It was that wild. I'd been over in Kansas and Oklahoma—and you can see them coming a long way and get out of their way. You couldn't see this one coming until it was—just like it just dropped out of the sky right down on us—it just dropped, because if it was anything like a storm that I've seen, why, I would have seen it back and would have turned around. That's all there was except for digging them out.

I: What did you think was going to happen when you first realized what it was?

R: Well, I'll tell you, it was my first I was ever in—just like I said—first one I ever was in, but I've heard how they was and when that cloud rolled over the back of that car, and just rolled over that windshield—you could just see it—just rolling down your windshield—just like you were pulling a blind—then I had time to say four words before the back glass in the car went and that was—"Jane, come beside me." I don't know why I knew it was coming—just something told me it was coming—and then—we didn't even have time if I'd wanted to move the car or anything—I wouldn't even have had time to reach the keys hanging in the switch—I wouldn't even had time to reach the lightswitch—just that quick it hit—just come and gone—I think it must have come back the second time—what I mean is it must have went over and then back again because it went over and got just a little bit light and it got dark again, and the next time it lightened up, why, it was just plumb light—there just was no storm.

Now, I'm not sure that it come back the second time but I think it did—what I mean, is—the wind was a-whirling, why, it would whirl and the cloud just raise for a second and then went down on us again when the whirl come back to us. I don't know, but I've talked to several of them and they think it come back twice—went over and come back—of course it was all so fast we didn't realize; it was all wind to us—in fact, it never did quit blowing from one time to the other—it slacked up for just an instant and then hit again. And the next thing you seen, why, was this bunch of flat buildings. Everything just tore all to pieces—you couldn't see anything that was—I mean, you couldn't see stuff in the air or anything like that because it was too dark—it was just as dark as the blackest night you've ever been in. Well, you know, when you're setting parked practically against a brick building, and don't see one go down, and you're facing that way—I was looking at a building at the time the storm hit because

I was watching my father setting there, and he was waving at the kids and they were waving back. I just jerked the kids down like that, you know, but I didn't have time to get out of the seat. I just set there like I drove up just like you was setting in your parlor except that I was turned just a little bit sidewards. We just set there, just like we drove up—we didn't get out or anything because we didn't have time.

I: Did you realize that you were in any danger—did you think about that—or—

R: No, you don't have time to think of anything. I just didn't even think about myself at all. It's a funny feeling—I can't tell you what kind of a feeling it is—just a funny feeling. I was scared, I'll admit—I was really scared because I always have been afraid of storms and I was really scared, but as far as being frightened myself or something like that—I wasn't—I was just scared—I don't know what of, but I was scared.

I: What were the other people doing around you?

R: When I got out of the car?

I: Yes.

R: Well, they just started to help get everybody out. As soon as it was over with, why, everybody just start digging and get them out—the ones that wasn't hurt was getting the ones that was hurt out, doing everything you could for them—get cars, ambulance and anything else they could get. Lots of them grabbed axes and things and started clearing trees out of the road where they'd get through—poles and things like that. About eight, or something like that, they finally got a bulldozer down there and started to clean the streets. I don't know—I lost all track of time. You were just there and you didn't realize what time it was or anything. I know it was three o'clock when I found my father because I happened to look at my watch at that time.

I: Were any of the rest of your family harmed?

R: My sister and my wife's mother and father got hurt pretty bad; her sister got hurt pretty bad. Her mother got a great big gash right up there on her knee—it's just like it's wide open, and her father got an awful hard lick right in there—you can see the fracture right in there—looks like a two-by-six hit him endways or something like that. They was home—blowed them down into some trees down there in back of the house. One of her sisters—she didn't get hurt at all and both of her sister's children didn't get hurt with the exceptions of one little bitty cut on the back of one of the little girl's leg—it wasn't a really a bad one. We didn't know she was hurt until that night—start giving her a bath—you know—they took her—my wife's sister took her and the little boy to Kensett. There was a woman come along and took them over to Kensett to stay with them, you know.

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I: Talking about other people a while ago—did you see one that lost their heads? —just running around—

R: No knowing what they were doing? Yes, they was a lot of them doing that. You walk up to them and—"How's so-and-so?"—and you know you lived right next to them or knew them real well—"Who's that?"—I don't know—they's just addled—they didn't know what they were doing. And I guess I was the same way—I don't know. Just like I say, it's a helpless lost feeling. Just as soon as I stepped out of the car—everybody commenced coming up out of places that wasn't hurt and hollering "Help," and, oh, it was just awful, trying to get people to hurry up and everyone was going as fast as they could—the ones that wasn't hurt. Some of them that was hurt, you know, wasn't hurt too bad—was getting the others hurt worse out, and you don't know where to begin because you know in all those buildings there's people. I don't know if anybody was caught on the street or not—I don't know that. But they did find a woman and two children on Sunday after the storm on Friday that must have been caught on the street—kind of ran to hide—must have been coming down the sidewalk—kind of ran behind buildings. They were just pitching brick back out of the way and found her leg and just started digging and it was a woman and two kids.

I: Did you see anyone get hurt?

R: Did I see anyone get hurt? I didn't see them when the storm hit. I seen them right after the storm. As soon as it got light I seen a lot of them. I don't know how many I seen there but I seen a bunch of them. The first one I seen rise up—the person I seen got up—of course he was helped up—was John U. He was just a solid mass of blood. His face was just a solid mass of blood and Ted B. was standing there holding him up, hollering—somebody help him get him out of there and he just seemed like he just waave back and forth. It might have been my imagination—he was just a solid mass of blood—his whole head—and then as soon as I seen my father might be over all that stuff and was beyond my help, I run down to my father-in-law's which was just behind the store—he lived right there practically in Main Street. I run down there and well, he looked up at me and said, "Charlie, my lad, get my wife—she done went on down there ahead of me." I got there and looked at my father-in-law and he looked up at me and he—oh, he just looked awful—he was bloody and muddy. I just had to look away for a second and looked back—he just looked so awful. His back was strained or something—it wasn't broken, but my mother-in-law, she was taking it very calm. I don't see how in the world she kept from bleeding to death. I reckon just one of them things.

Right after the storm—it didn't stay light very long—we just had flashlights—that all we had with us. It was light until about—oh, ten—maybe, oh, it wasn't light ten minutes—about five—five-ten minutes. You could see it getting nearly dark. It kind of began to get a little bit dusky for after the storm was over, why, it lightened up and seemed like it got lighter than what it really was there for just very few minutes. I don't know just how long it was but, as I say, I lost all track of time. I had to worry about mother. I knew she was down here

by herself and I didn't know whether this place was blowed away or not. I had my father up there, you know. It's an awful feeling, I'll tell you that right now. Just so many people there—you want to help them all and you can't only help so many at once because you can only be in one place at a time. Then just a little bitty flashlight —it ain't much of anything to look for anybody but I just had a little old two-cell with me. I didn't have my big light, just had a two-cell; in fact, was getting a little low on it. I finally found me some batteries about, oh, I judge around nine o'clock this guy come along, had a bunch of new batteries and gave me a couple of new batteries. That helped me out quite a bit. Of course, after the National Guards got there, why, they brought in them motors and bright lights. But before they got in the trucks that was coming up—just turned their lights on them and throwed them on a building and pushed them around, you know, where the lights could get on the buildings, and worked that way until nine o'clock.

I: How long a time did that seem to you from the time you realized what was happening until it was over?

R: It seemed like a long time, naturally, you know, getting scared, and you didn't know what was going to happen. We wasn't thinking about that—you don't think about that until it's all over—what's going to happen. I was scared—I don't know what I was scared about or anything like it—that's something you can't hardly answer—why your're scared—because you really don't know. You don't know what direction you're going to go in. We was awfully lucky—we set still—I mean with the exception of being up in the air a little while. When it set the car back down we never did know when it hit the ground—we just know it quit weaving and was back on the ground. How high we went, I don't know that either but we must not have went very high. It wasn't very high—it looked like it carried us probably just enough to clear the ground—just enough to blow that stuff in under the wheels. I bet you, though, I couldn't take a jack right now and jack that brake pedal as far as I pushed it. I don't know why I pushed it—I was really pushing it. You couldn't have moved them wheels if you had to.

I: How did the children act?

R: We just pulled them right down against our breasts—had their face covered up because I had their face pulled right into—I had my arms over his head and I imagine it was over his ears because they just—the boy cried out once—the girl never did cry out—she was under my wife's coat—she had on a coat—I didn't—I was just in my shirt sleeves. Of course it wouldn't have done any good to have on a coat—it would have been just soaking wet in seconds, anyway, for it rained just as hard—like somebody took a wash tub and poured it over your head.

I: Were there a lot of outsiders in town?

R: Shortly after the storm the streets were just clogged with them. We couldn't do anything. Some of them were trying to help and some of them

were just trying to see. The highway was just blocked practically—all you could see was just headlights, bumper to bumper, as far as you could see. Here in town they apparently only had one-way traffic. What I mean is, we just chopped out a big enough spot to get one car through and they'd come in there and we was trying to take the hurt people out—I was helping load them. As I said, I couldn't move my car over ten foot each way—I had one step in front of it and behind it. I did dig it out—pulled the stuff out from under it—got down on the street—trying to go, but I could go nowhere because of a bunch of wires, poles, tin, brick and everything else right in front of me, and there was a great big brick pile right behind me. So I couldn't go that way—all them poles, wires—kept me from going the other way. So I just backed my car back in where it was setting. I started to help all I could to get others. As I say, you don't hardly know who to help because everybody is hollering at you—you just go from one to the other as fast as you can. Finally, after we got pretty well all the hurt ones up, why, I tried to get down here and got in the street—after we kind of got the street where we could—it had a traffic officer in town—so I come out this road right here and come straight in. I knew I couldn't come in any of these other ways. I come out from there and there was a bunch of men walked this way, looked for people who was hurt, and I couldn't get out this way. My place is two houses up on the road right there, you see, the turn off, the road—and I couldn't get down this way, that-a-way, so this boy standing there he told me that there had been a bunch coming down this way. I said, "Well, I'll just wait a second, a few minutes—and they'll be back, and I'll find out whether mother's house was blowed away." So I had been there, oh, about ten minutes or something like that and one of my cousins come along and told me that he had took my mother down to his house, and he lived in town, see. He took her down there and I said, "Well, I'll go back down there," so I turned around, started back down there and it seemed like—I know it took me a good hour to drive two miles, maybe longer than that—I don't remember. You were just bumper to bumper and traffic just moved up as it could. Finally I just give up and when I got back, nearly back to where the lumber yard was, I just give up and just pulled the car off—there was a little opening there between a couple of trees—poles and stuff like that—and I just pulled in there and got out and walked on down there to where she was at. I seen that she was all right and everything. She was worried about us and I knew she would be and I went down and told her that we was all right. She asked me where Jane was and I told her she was in the car with the children. She asked me where the car was and I told her, and says, "It's raining awful hard now for you to get out in the wet. I said, "I'll tell you what I'll do—I'll go back to the car and I'll work around and get down as far as I can get so we don't have so far to walk. The traffic had me tied up, so I turned around and came home." So I did—I went back to the car—got in—and finally worked back down in front of Dad's store—in that way she only had about three blocks to walk. So then I went on up there and got her and by that time it had slacked up a little bit and she got back down to the car without getting wet. As soon as I got her back down there, why, by that time the Guards had

the lights there and start looking for father and found him them. The rest of it was just digging out and doing what you got to. I think he was the last—some of the last dug out because, as I say, they dug out some on the Sunday afterwards. I don't see how we come out as lucky as we did—what I mean, I don't see how the town come out as lucky as it did without more people being killed the way it tore up.

I: Why do you think that is? That there weren't very many killed?

R: I don't know because it hit right at supper time—everybody back there was eating—everybody was home. Now that might have been one reason because there weren't more on the streets. They wasn't too many up in town—they was mostly all home eating. Some of them was just getting ready to come back to town and some of them was getting ready to go up to a banquet up at the school—a bunch of school kids—getting ready to go up there—had on their evening clothes and everything. The school house was tore all to pieces—had it been a little bit later and they got up there they'd all been killed—bunch of them up there—because the schoolhouse was just torn down.

I: Did you get plenty to eat during the thing?

R: Yeah, I got all I wanted. What I mean is, I just didn't care for much to eat. As I say, I was going and doing just all I could and I'd run up and get a cup of coffee, something like that—and then go right back and start digging. The next day we was all busy trying to salvage what little stuff we had left, finding the hurt ones. First one thing, then another. Getting the roofs back on the face of the houses that stood. My house was—we put a bunch of tin and stuff just back up there and nailed it over windows and got the roof back where it don't leak too bad. Nailed up the doors that blowed down—the doors just caved in—the walls stood and one of them is knocked pretty bad out of line. Didn't move off the foundation—stayed on the foundation—I don't see how, but it did, and what might have held it down—of course I don't reckon it did—it could have—is I had a fence to keep the children in and the fence post was setting just nearly against the house. I guess it did move about two inches, something like that, right off the foundation, because it's out against the fence post—it's right against it. I guess that fence post wouldn't have stopped it but I think it might have kept it from coming off the foundation.

I: How much damage was done to your home, you guess?

R: Well, the roof was took off of it—all the windows was knocked out—one door was knocked in—In other words, just got to tear it down and start all over. You could, I guess, go in there and take something or other and pull that wall back in there, I don't know—get something down behind—tie it to it and just drag the thing back in. I don't know whether you can do that or not, and a bunch of rafters broken in the roof, of course—we can't put them back on—we just get together some way to hold up that roof and get the roof on and get the stuff dry. That roof has to come off

and put on another roof because some way it got holes in it--tin had been blowed off--of course it's got holes in it now. Just like I say, we put it up there to kind of get our stuff dry. My mother-in-law and father-in-law's house--they was just completely destroyed and they was all hurt. I just took part of their stuff that was left over there and my brother's house, it was picked up, slammed up against a tree--took his stuff over there and just packed it in there because you know we had a pretty week right after the storm. We'd go up there, lay out a bunch of it to get dry--we didn't have no clothesline and didn't have nothing to hang it on. We just laid it out on the--out there--to get dry and we go do other things while it was getting dry. I don't know what all we did do because, as I say, we just worked from daylight 'til dark and drive two-thirds of the night trying to find the ones that were hurt. We didn't find my wife's daddy until Sunday after the storm on Friday--Sunday evening about, oh, I guess it was around nine o'clock we found him. Of course after we found him, why then we stayed with him for a little while and then turned around and drove back home. It was three o'clock when we got home. Traffic was pretty heavy, too.

I: How much damage do you think was done all together?

R: My whole family? The whole town was just completely tore all to pieces--they ain't a building down there but what if it's to be put back half way decent will have to be tore down completely, start from the ground and go up. Because in every one of them a wall will be out of line some place. You don't just put a wall back in line. Most of them is off the foundation completely. Roofs is off--a whole lot of them. Some of them got holes knocked plumb through and through them. Swear some of them look like somebody was blowed plumb through. You see one-by-fours and two-by-fours sticking out through the side of a house.

I: When did you find out that the storm was as big as it was?

R: Next day, when I was able to get around a little. I didn't believe that night that it was as bad as it was until I started getting around over town. I knew the town was completely demolished but I didn't know about the country.

I: What sort of problems did the tornado raise for you and the town?

R: We was all homeless--we didn't have no place to go--we had to get out and find us a place. The problem was getting our stuff--what little we had left--gathering it up what we could find.

I: What was done to help the people that were hit by the tornado?

R: Well, we brought in food and clothing and guarded the stuff--the National Guards--guarded the stuff, you know--the State Troopers guarded--and they had warm food twenty-four hours a day--any time you had time to go get it and then after the third day they got a bunch of trucks in and they started just coming around where you was working--feeding you where you was working--

coming around noon, coming around in the morning, about nine o'clock--feed you and give you coffee and made you a sandwich or something like that. Along about three, four, something like that, they'd come out there give you a sandwich, coffee or milk, or whatever you wanted to drink.

I: Was everything done for those that needed help? Rescue work and relief work and everything?

R: As much as could been done--it just took time. You'd do all you could do and then you still couldn't take time to do it all. No matter how many is helping--it's still going to take so much time. The more there is the faster it gets done--that's true enough but they was just everything done as fast as it could be done. They brought in a bunch of heavy equipment and that helped clean up--well, it cleaned up all the streets.

I: After things quieted down, did you find it hard to do your regular work?

R: Yeah, it is. You get started doing something, and I don't know--you just get discouraged or something. What I mean is, you see everything you worked for just flattened out, and well, you have a kind of discouraged feeling--I guess you call it the blues, I guess.

I: Do you still think about the storm?

R: Yeah--everytime there comes a cloud, lightning and thunder, especially when it's at night--try and see what kind of a cloud it is, or watching it all the time--you're not sleeping, I'll tell you for sure. Naturally you know you're scared--at least I am--everybody else is, too--everybody around here is, I know that.

I: What is it that comes to your mind?

R: You wonder if another one is coming because, as I say, we didn't have no warning on that, see--just looked like a rain coming up--didn't look like a storm cloud and just dropped down--hit us--was gone--

I: Do you still talk about the storm?

R: Yeah--that's all we talk about--everywhere you go. At work that's the whole subject. You ask a guy--you ask all of them if he was in the storm--if he was in the storm, how bad he was hurt--you know--just back it goes like that. We always refer to the storm.

I: What would you think was the worst thing about the storm for you?

R: Worst thing? You mean the worst part of going through it? Was all the racket--being dark and the wind was blowing and blowing, and it was really blowing. And this--you didn't know what--any one second you was going to go--you didn't know what was going on around you. As I say, it was so dark you couldn't see; it just had you scared to death--that's all I know.

I: You ever had that before in your life?

R: No. That's the first time and what told me that that was a cyclone I don't know—just seemed like I just knew it was.

I: Was it about what you expected or was it different?

R: Well, I don't know what I expected but I've been, you know, where they've been before but I've never seen one this wild before. Never seen just the whole community tore all to pieces. Never seen one stay on the ground that long. It must've stayed on ground eight or nine—ten miles, something like that, before it all raised a bit. I don't know how far it travel'.d.

I: When was it that you felt that the worst was over?

R: As soon as it start getting light. I just knew it was over, that's all. I don't know why I knew it was over, I just knew it.

I: What do you suppose kept you going through all this?

R: Kept me going? Well, you just went because you just knew you had to go. And then another thing is, you want to do for everybody that was hurt, see, how they were getting along. You knew you had to take care of the stuff, what was left to take care of—I guess you might say you went on nerve a whole lot.

I: Do you feel that you've changed any at all because of all this?

R: Changed? I don't think I have. Maybe I have, too. I don't know. I guess I can tell later on whether I've changed or not but right now—I'm scared—I'm a lot more scared than I was—a lot more nervous than I used to be. Being nervous is a lot easier.

I: Have you had any ill effects since the storm? Get sick or—

R: I could have got sick very easily but you know, I knew I had to keep going so I just kept going.

I: After the storm, how did the people in general—how did they behave?

R: Well, as I say—started to try and find their stuff—what little they had left in and try and see about the folks that was hurt, trying to get a shelter back over their heads and finding a place to stay—things like that.

I: I was wondering were there any specific people that were good leaders during this time?

R: Well, everybody was leaders then—they was just so much to be done and everybody just pitched in and start doing it. I don't know if you say there was any leaders or anything—everybody knew what had to be done and just started doing it.

Case 4-11

I: Now that you look back over it, is there anything that you would have done differently?

R: No. There's nothing you can do differently. Of course not. If I'd been out there and I'd seen a glass coming or something like that--and I knew there was a storm house around and I seen I could get out of the path of it, why, naturally, I'd do it.

I: What do you plan on doing now?

R: Building back my home--getting settled down again--get things straightened around--back to work--got to go on. This is home to me--what's the use of going anywhere else--it might not be another coming through here--there might be another one through tomorrow--wherever else you go there might be one through the same day you get there--you don't know where they're going to hit. Now, before the storm, I was planning on leaving, but now I don't care about it. I was planning on going north some place this summer just for a change, but now it seems like I'm going to stay here and see everything built up again and then after that I may go again. But right now I have no more hankering to go anywhere else than stay here and rebuild and settle down.

I: Do you think that you've learned anything that would benefit you or someone else in case of another disaster like this?

R: Well, I'm going to build a storm house and if I see the cloud coming, I'll get in it like that. If I see any of them I'll get in it because as I say, I've always been afraid of them things. Now I'm more afraid than what I was. If it starts lightning now it will wake me up--it didn't used to bother me--it would come up a cloud, you know and lightning around a little bit and rain, and maybe the wind blow a little bit and I'd just sleep on through it, but now it starts lightning, I'll wake up.

I: Do you think that it will affect the children?

R: Now--they'll outgrow it in time--think, well, they're pretty nervous now--there comes up a cloud and the wind starts blowing or something like that, now they really get afraid. But I think in time they'll get around it, but I imagine they will all be afraid of it to a certain extent.

Appendix A-5

The respondent is a 22-year-old married woman who was seven months pregnant, the wife of a construction worker. She was at home fixing supper for her father and mother, brother, sister, her sister's husband, and her husband, who had not yet arrived.

She was trying to shield her mother during the storm and received a blow on the head, making her unconscious. People had told her that she was trying to get her mother out of the wreckage, but she cannot remember anything about it. Her mother died of injuries and all other members of her family were hospitalized. She lost all her clothes and furniture as well as the house, which was completely destroyed.

Case 5-I

I: If you will just tell me what you remember about the day of the storm?

R: Well, it was just before dark and I guess the clouds started to come around. I hadn't noticed really what kind of a cloud. Well, my sister was there and she said that it looked like it was going to be a bad storm. I didn't think much about it. Of course, I have never seen anything like that before, you know, and I didn't even look out and I never did get scared because I really didn't know that it was going to be that bad until it started blowing and it really started storming. It was just before supper and we had just sat down for supper and the lights went out. Of course, and then the storm started right after that and my younger sister and her husband and baby were there and they were going to have supper with us. Then there was my daddy and mother and my younger brother in the house, and my husband was still downtown when it happened. I don't remember too much.

I know that we had an oil stove in the kitchen we cooked on and my mother had turned it out and when the wind started blowing I thought it was going to get the house on fire so I got the water bucket and went over to the stove and put the fire out. My younger sister put her baby to bed and I told her to get the baby and she and her husband went and got the baby and took him into the front room and they put it in between them and locked their arms around each other as they saw that it was really a bad storm. When I started to put the fire out, well, my mother had turned it out already and the house was sort of rocking. She fell down and I ran over and put the fire out and helped her up and we just barely got through into the living room and my brother was trying to hold the front door closed. Then as we walked through into the front room the house started moving and it knocked us off balance. It lifted our house, it took it into the air and off the foundation, then took it for a ways and dropped it right down.

I remember it just seemed that we fell forever when we started falling and I could just remember things hitting on everything but I kept trying, I could see mother laying on the side of me and I kept trying to pull her over under me and I was on my hands and knees for, I guess, most of the time. The doctor said they believed that was one of the reasons why things didn't hit me in the stomach and that was one of the reasons I didn't lose my baby. And I can't remember much more--just what I told you.

After the storm was over, I was conscious, but I couldn't remember what I did. I fractured my head but they said that mother was still close to me and I was trying to get her out. Of course, my house--it was a new house, you know, and it was splintered in all pieces and we were under there and I was trying to get mother out. My younger brother wasn't hurt, came to first and started for help. I don't remember much that happened but they said I tried or was trying to get mother out from under the boards and things and my brother-in-law, he got up from in back of my younger brother and he came over after he saw about his wife and the baby and saw that they were all right. He carried my mother over and put her next to the ditch bank. They said he carried me over there. I just couldn't remember just

"I" stands for remarks of the Interviewer.
"R" stands for remarks of the Respondent.

what I did and then they said that I helped the baby while he helped my sister over there. My daddy and my younger brother had gone for help and one of my married brothers from town, you know, after the storm had started up there, so just about, I really don't know how far it is from our house to the house where my sister and I took my mother and carried her. She was badly hurt. It had cut one of her feet off and she was real bad hurt. My younger sister at the time had a broken shoulder and a fractured collar bone and I had a lot of injuries, too, but I didn't think of them, just getting mother somewhere so that she would be safe. We carried her down 200 or 300 yards, I guess, or something like that, down to the end of the little road to one of the neighboring houses that wasn't blown away. We took her in and put her on the couch. Daddy was able to walk and my brother-in-law had the baby and my sister, and I took mother in and put her on the couch. My older brother came in and they got in the car to take us to the hospital. I just couldn't remember everything that happened then, but, of course, they said that I was rubbing mother's feet all the time because she said it hurt, you know. They got into the car then and started to the hospital. They got stuck before they got out to the highway and they had to go and get another car to bring in to get us. I remember my older brother was carrying mother and he was so scared. It was so muddy; he kept falling down on his knees, but he never dropped her or anything, you know, and took her to the car. We started for Searcy Hospital and we got to Hawkins Hospital, and mother still, she talked some on the way over there; we all did; daddy did, too.

My daddy, his head was cut and his ear was cut but he talked just like he knew, but afterwards he couldn't remember any of it. They took mother and daddy and my younger sister and her husband and the baby out to Hawkins Hospital and they didn't think I was hurt so bad so they took me on over to the Armory where they set up the ones that weren't hurt so bad. But we got over there and I couldn't walk. I had a back injury. So they took me on over to Rogers Hospital and in between times I kept blacking out, you know,—I couldn't remember anything. I couldn't remember how badly the rest of them were hurt or anything. They took me in and they had all these mattresses down on the floor, you know. They were filled up and they put these mattresses in the hall and they put me on one of those and took my clothes off and put a gown on me. I couldn't remember anything else until my husband got there. I guess it must have been thirty minutes later until he got over there, found out where we were and everything, and then they took me in and sewed up all the cuts and all, and they put me in a room then and I got along real well. I kept sending my husband back to the other hospital to see about my daddy and mother and all of them. They took them all on down to Little Rock the next morning, I think, and my mother died down there, but my daddy and sister, they're all right now and are out of the hospital, and my brother-in-law, they were treated for minor injuries, you know—they weren't hurt real bad and the baby wasn't hurt at all. I guess that's about all—

...until I started getting well, you know, because of the fracture on my head. They took real good care of me over at the hospital and I really came out of it fast and got well. I guess I was just in the hospital

about two weeks. Of course, my daddy and sister and I are still under doctor's care over here and we all feel pretty good now. Of course, we lost everything in the storm. It just splintered our house all to pieces and the furniture that my husband and I were living with my mother and daddy at the time and everything we had was there, too. We lost everything. We couldn't find anything. Clothes and things like that, you know. It was just all destroyed. That's about all, I guess. There's nothing more to tell.

I: When did you first know there was going to be a storm?

R: I guess it was about—I guess it was close to—I don't even remember the time it was close to. It was close to six o'clock I guess, or six-thirty. It was dark. When the light went out we couldn't see enough, you know, to go ahead and have supper. But the lights went off, it was the first that I even know the storm was going to be that bad. After the lights went out you could see the lightning and thunder and then we thought it was just going to be a bad storm so we tried to hold the doors, and the windows, when it started blowing so hard, the windows started blowing out first, and it seemed like it came from one direction and then another and after we fell to the floor and looked up we could see this big house sort of spinning around just like it was going around in circles. And that was just before it lifted it off of its foundation. The corner of it came right down and hit the ground and it jarred us on down and it lifted up again and then it fell, and when it fell it just smashed all to pieces.

They said that we were under a lot of boards, 2-by-4's, and furniture and things like that and that they had to dig us out. We were partly covered up by a lot of it and they said that we were so muddy that we couldn't tell one from the other, but I couldn't remember it even then. I didn't know, it had even rained. They said that it rained real hard and that the wind just kept blowing but of course, that was after the worst was over, though. We came to sort of after the house was all blown down and we went on through the storm and I couldn't remember it raining. They say that it was raining and that we were all muddy. I know that I was muddy in the hospital for days and they couldn't comb my hair or wash it or anything and I just messed up one pillowcase after the other—got mud on it in the hospital. But the ones that could remember real well said that it was awful because they could remember seeing the neighbor kids and the neighbors laying around. There were several in the neighborhood, that's where it struck, you know. There were several killed from the neighboring houses across the street. My younger brother helped some of them out over there and he tried to help get them out and into the ditch bank so that we would be sheltered from the storm, and I couldn't remember, of course, hearing, as they said everybody was screaming and it was just like a nightmare because when my head was injured I just couldn't remember that clear and I'm really glad that I couldn't.

The doctors told me not to even try to remember it, you know. They were surprised that I came through as good as I did. I had several injuries but it seemed that I am going to get well quick and I didn't lose my baby either. I'm seven months pregnant. And there was one of our

neighbor girls across the road--she was pregnant, too, and she expects her baby at the end of the month and she didn't lose hers, either. She has two small children, you know, and they were both alive, and her husband, too, but there were two or three families right across the road from us that lost two and three and some of them are still in the hospital and haven't gotten out yet. I guess that's about all. There isn't much more to tell.

I: You say your husband was where?

R: He was down in town at the time and he came just as soon as he could get out and start up there. But by that time, I guess, we had all started to the hospital so he ran all the way up to where we lived and he was trying to find me. He didn't know that they had taken me to the hospital yet and one of the ladies across the road was killed and they had covered her up with a coat or something and she happened to have a pair of shoes on like mine and, of course, he just went crazy because he thought it was me. He wouldn't look to see, either, and somebody got hold of him and made him go back and then he figured they had taken us to the hospital. I guess it was thirty minutes before he could get to the hospital and find me and everything and I can't remember but just a few things. It seemed that I would come to for a few minutes and then black out again until he came to the hospital and they took me in and sewed me up and everything. But he wasn't hurt at all. It didn't hit too hard downtown and he wasn't hurt and I think that helped me a lot, you know, getting well because he was there all the time and I didn't have to worry about him and that helped me to get well a lot faster.

I: Now, who was all in your house at the time the storm hit?

R: My mother and daddy and my younger sister and her husband and their nine month old boy and my younger brother and me. That was seven of us.

I: When did you first know it was going to be a bad storm?

R: When the lights went out, I believe. Then we could see outside how the clouds were and it seemed that it happened so soon after the lights went out that I didn't have time to get scared or anything like that, you know.

I: What could you see out?

R: I really didn't get to see out. They tried to tell me about it. My younger brother, he saw one of our neighbors across the street--their house--he saw it pick it up, and he was where he could see out, you know,--I wasn't--after the lights went out--it happened so quick that he said the neighbors' house across the street from us--he said it picked it up and he said that if it would have came toward our house it would have been high enough that it would have went over without even hitting it, you know. But it didn't bring it toward our house--it brought it toward and around the back of the hill from our house and they could see a lot then. But my mother and I--when we had started from the kitchen to the front room, the house was rocking and got us off balance and we fell to the floor and

we never did have time to get up after that for our house started to move and twist around and then it just picked it up and carried it for a-ways before it put it down and we really didn't have time to see much before that.

I: What could you hear--how did the storm sound?

R: Well, I didn't hear anything but some of them said it sounded like a roaring, you know, sort of like a train, but we were living sort of at the bottom of the hill and I think maybe that kept us from hearing it. The hill blocked the sound off, you know, and it just started blowing hard then and everything, and of course it made a lot of noise then, you know, a roaring sound.

I: A roaring sound.

R: A lot of them thought it was just a train going through. The roaring sounded something like that. Of course, I don't think anybody would have time to get to a storm cellar after it started blowing. It happened too fast, but there were a lot of people around the country that had seen the clouds and had gone to a storm cellar. If they had waited until it had started they wouldn't have had time to get anywhere. After it started it just happened so fast that you just couldn't do anything. You didn't even really have time to think.

I: What did you think about, during the time of the storm?

R: I kept thinking about, of course, I always thought of my mother and kept trying to get her where I knew nothing would hurt her. I think all of us was thinking of mother and the baby. At the time, my sister had said that she thought that it was the world coming to the end because it started, you know, so violently. But she belonged to the church and she said that it occurred to her that if it was she wouldn't be in it and then after that she knew it was a storm but I never thought anything but that it was a bad storm and that I would try to keep mother where things couldn't hit her. It seemed that it lasted a long time but I know it didn't. I kept trying to pull mother under me and I guess I must have been on my hands and knees and I kept trying to pull her under me and they said that when it was over that she was partly under me but it wounded her a lot worst than me. As you know, she died from her injuries. But I didn't think she could be so close to me and get hurt so much more. I guess, really, though, she just wasn't young and strong anyway like I was and couldn't fight her injuries like I could.

I: She got hurt in her foot?

R: Yes, and it crushed her chest in some way, and what she died from was her chest injury. But something had mashed part of one of her feet off so that hit her there. After it was over, we was going to help her along and put our arms around her hip and help her on down to the neighbors' house and then we saw her foot. The one thing that I could remember through it all was that I saw her foot, and then we had to carry her,

see, and my sister and I picked her up and between the two of us we took her to the end of the road where there was a neighbor house and I really didn't think she realized that she was hurt. She told me her foot was paining and she didn't really know her foot was mashed like that and I rubbed it for her and tried to care of it for her, you know. Afterwards I couldn't remember that then. I couldn't remember doing any of that after they told me what I did, after I came to and was all right.

I: During the storm, you can remember the storm itself?

R: Part of it. I can remember that it must have been bad and I remember that I couldn't breath because the wind was blowing so hard. I could feel things hitting me, just everything hitting, but it didn't hurt then, of course. I don't remember too much but I know that I could feel things hitting me but that they hurt me.

I: How did you feel?

R: I can't describe how I felt but it was like I was in a black and I was just reeling in a black pit or something like that, and I couldn't see. I don't remember where we were until the storm was over but I don't remember seeing anything. I can't even remember seeing my mother or daddy or any of them after it was all over. But they say that I helped mother and the baby--that I helped getting them to a hospital. Yet afterwards I just couldn't remember. I remember thinking I couldn't breathe and it seemed that it lasted forever--so long--although it only lasted a few minutes.

I: Then as soon as you all could--when the house settled back down--then where was it you went first?

R: We went to a little road about 500 yards that leads just off the main street that leads back to the houses along there to our house. We carried mother to the end of that where a street went through and there was a house.

I: And did you go in that house?

R: Yes, we went into the house. The people opened the door and helped us in and everything. Their house was still standing, of course. Their windows were all blown out and they said that there was glass on the floor, and if we wanted to come--and we were all cut up anyway. I couldn't remember too much about going into the neighbors' house but they did say that we carried mother into there and daddy was able to walk and that my brother-in-law--his hands were hurt and everything. I guess we didn't realize it then, you know, he was carrying the baby and we went down to this house and we waited for the car to come and take us to the hospital. I can remember seeing mother's foot when we were carrying her. It was just a short ways to the house and it seemed that one minute we were up at our house and the next minute we were there. I couldn't remember walking a long ways or anything. It seemed like such a short distance.

I: How long was it before they got a car in to take you to the hospital?

R: Well, about ten minutes to come to the house. Of course, the storm was still going on then. We just got up as soon as we could. As soon as the house settled down, we came to our self and it was still storming, but we started out then and we were there five or ten minutes before they got a car down to take us to the hospital. But we got stuck and we had to go across the field to a filling station there and get another one. They carried mother into the other car and we all walked over. From there we went straight to the hospital, of course, there were so many going before us and there were so many cars going across the road and everything that it took a quite a while for us to get to the hospital. It was real slow going, you know.

I: There was lots of traffic then, already?

R: Yes.

I: Well, was the roads open in town here? Were the streets open?

R: Part of them were—part of them had buildings or trees going across them. That's the reason we got stuck, —we had had to take sort of a side street and we got stuck on it. A lot of the main streets were blocked by one thing or another.

I: And you say you don't remember that trip to the hospital too clearly?

R: No, just sketches of it I can remember when I sort of come to myself. They said I talked to them but I can't remember talking or doing anything like that.

I: You can't remember what you talked about?

R: No. They told me that my younger sister kept asking mother if she was going to be all right and I told her not to make mother talk because she did not feel like it, but I didn't realize that they were hurt as bad as they were or I'm afraid I couldn't have gotten along as good as I was—only they had me in a different hospital and they didn't let me know how bad they were hurt until I was there.

I: How were the other members of your family hurt besides your mother and you?

R: My younger sister has her shoulder broken and collar bone fractured, and a piece of wood was driven through her back and she had several pretty bad cuts all around her head, and she had one awful place on her leg. It was bruised. I guess you would call it a bruise—but it was a terrible mash and she is still having a little trouble with it. She had several other cuts. Everybody was just cut all over and my daddy, his head was, from his forehead back to his head, was cut and the only place he seemed to be hurt was on his head. He was standing right in front of the door, trying to hold it, and I think that's what fell back and hit him or something

because it was mostly his head and shoulder and he had his back all bruised up with his shoulder and one of his wrists was cut, and of course he was all bruised all over. He had several other cuts on his head besides the big one. His ear had got cut in some way, down here, you know, where it had dropped and they sewed it back and got it fixed up all right, but he don't know yet if he will be able to hear with it or not. My brother-in-law had a slight fracture of the bone on his shoulder and that he had put his hands on my sister's head to keep anything hitting her in the head, and his hands were all cut up. One of his fingers was almost cut off but it is stiff now and they don't know if they'll be able to get it straightened or not. He had cuts on his head, too, and bruises. My younger brother, after it was all over, they had to take him to the hospital because there was some shock and he had his legs hurt but they only kept him a day or so and then let him out. He wasn't hurt bad. He had a cut or two on his head and had cut--and something had fallen across and bruised his legs, I guess. He was able to be out of the hospital--he was able to be out in two or three days.

The baby had got some mud in his eyes but it didn't bother his eyes, and he has one little scratch on his back. Not at all bad, you know. Not enough to even make him cry. Some people had taken the baby to the hospital with us because there wasn't anybody left that wasn't hurt to leave him with and my sister was holding him in the hospital and she was about to pass out and there was a man, a preacher, and he came up and took the baby and asked her her name and the baby's name and where she lived. He took the baby home with him and kept it for two or three days until my people came and got him. That was really nice of him. She was just about to drop him and he caught him and took him home with him.

I: You say that you and your mother fell to your knees when the worst of the storm came. Now where were the other people in the house at that time? What were they doing?

R: My brother, younger sister and her husband had the baby between them and they were sitting on the floor sort of behind our big chair, an arm chair, and daddy was trying to hold the front door, too. And my younger brother had gone toward the bedroom door to help daddy and he didn't make it there, you know, before the house blowed away; he was still just standing there in the door.

I: You said your husband was downtown. Did you think about where he was during the storm? Did you wonder what would happen to him?

R: Yes, and I wondered about the baby--if I would lose it. I had a little trouble in the first place and I was crazy about keeping it, you know. I remember wondering if he was all right and if I would lose the baby. But he--I kept wondering if he was supposed to go to the Veterans Hospital down in Little Rock and I thought he had gone down there and wasn't hurt, see, but the clouds came up and he had decided not to go and he had started back home and got as far as town and had called a taxi to come home and the taxi was just slow getting there, or the taxi driver and him had both

been there on the hill. The storm hit mostly on the hill where we live and it didn't do too much damage downtown. Not a lot.

I: Where was he when the storm hit? Had he gotten in the taxi?

R: No, he was, as I say--he was waiting for the taxi to come.

I: Did he say if he realized it was hitting in his home area?

R: He didn't. He said that he thought the worst of it was downtown. He realized it as soon as he could get outside and start home. On his way it was light enough so that he could see the outlines of the houses and then he got up to the little road that leads up to our house and he could see that they was all gone. Then he ran up to the house and he thought maybe we were at the field in back of the house and he just looked everywhere; before he got home one of the neighbor girls that lives across the street from us got up out of the ditch there. I guess it must have blown her there because she did not know how she got there. She jumped up and she ran to my husband and she was trying to find her husband. Her husband had gone fishing and had not been home yet. She may have started looking for him, I don't know. But nobody knew anything hardly about anybody else.

I: Howlong was it before he found out where you were?

R: He just turned back downtown and found somebody to take him to the hospital over here and I guess they must have told him that they had taken us on to the hospital. Of course, he couldn't get through Judsonia, the next town over, and he had to go around by Providence then, so altogether I guess it must have been a half an hour before he got to the hospital.

I: How long was it from the time he went up there and saw the house blown down until someone told him you all were alive? And in the hospital?

R: I think that there were still some people up there and they were still getting them out of there and they had told him that they had probably took us to the hospital up there because afterwards it was sort of over with and the people could see that it was worse up there--they all started up that way and they thought they could help the people up there, you know.

I: When was it you found you couldn't walk?

R: After we had left my mother and daddy and sister and her husband on over to the Hawkins Hospital, they drove over as far as the armory. When I tried to get out there I couldn't stand up or walk. Then they drove me from there to the Rogers Hospital and I stayed the whole time until I was released there. They took my daddy and all the rest of them on down to Little Rock.

I: You say you couldn't remember it raining?

R: No, I didn't even know that it had rained. Of course, I could remember

that I couldn't get my breath, but I thought that it was probably the wind. And some could remember it hailing, but I couldn't tell if it was hailing or what was hitting me.

I: When did you first realize that it was going to be a bad storm?

R: When the lights went out, I think, and we couldn't see anything and the lightning and everything—it made me realize then that it was going to be bad. My sister had gone to the window and she had remarked that it looked bad out and I know it lightninged once real big and she said it looked like it went clear across the sky. I remember that she said something about the—the lightning how it went across—or something like that, and how bad it looked.

I: How did you feel when you realized that it was going to be a bad storm?

R: I kept thinking that maybe it would blow the flames of the oil stove up and I thought it was going to catch the paper—the wallpaper—a-fire, and I kept thinking not that it would blow the house away but that it would catch fire. Mostly I was trying to put the fire out. After I put it out I started for the front room then and it threw us to the floor and it seemed like it all around happened at once after that. We barely had time to look up and see the walls spinning. All I thought of was trying to keep the things from hitting mother and trying to get her under me so that they couldn't hit her and I didn't have time to be scared or think about the storm because I was trying to keep the things off of her.

I: Did you see anyone that did get scared in the storm?

R: No, one of our neighbors, she is still at the hospital at Rogers, now, I believe. She said that she got scared and real cold, you know, and was just rigid, she was so scared, and she had went and got between a mattress or something and that she was scared.

I: Have you ever been in a bad storm before?

R: No, nothing like that.

I: What about the relief work in the town—how was it carried on?

R: Well, they set up the Red Cross buildings in the school buildings in whatever of them that was left. They set up their headquarters up there and issued their clothing and things from those buildings.

I: Have you any suggestions or anything that might have been done for the people that hadn't been done?

R: Well, I don't know if they just go ahead and go through with what they had planned to do. I think that they will be very helpful. There was nothing else that they could have done.

I: What all was done for the people that were in the storm?

R: Oh, they got clothing and food and they're seeing about their hospital bills, and they issued tents and things so that they can set up housekeeping. They are giving people back their furniture, I think, to set up housekeeping. That sure is wonderful for all of the people that lost everything that they did have. Some of them have set up their tents, got their furniture and are housekeeping. There were several that didn't have a lot of people to stay with and that's really helped them out expecially because they didn't have any place to go and seeing that they really started helping fast and just pitched in, you know. That was right after it happened and that really helped out a lot of people, I know.

I: What about local people. Did the local leaders direct—or who directed the relief work in the town?

R: I know that the local people worked in helping them issuing things but I don't know if they had someone over them or to supervise them, sort of. I was in the hospital for about two weeks and I just don't know exactly how it went. I know that the local people helped to issue the things. The people that worked there helped out like that.

I: Did you hear any suggestions as to how that relief could be improved in a similar situation?

R: No, I really didn't hear anybody say that. They all think that if they carry out the plans they said they would do—the plans they have already made....

I: Which plans?

R: They are going to have the people build back their houses, those who have lost their houses and want to build back, and help them to get their furniture back and get settled back like they were.

I: Are most people planning to build back that you have heard?

R: Well, several of them are and there are a few that are not. We want to build back where our house was. There are a few of them that are scared or something and are not going to build back.

I: Did you hear of any people doing anything that they shouldn't have—going through town, or looting, or anything like that, after the storm?

R: They said that they did quite a bit on it. I couldn't say for sure because I don't know, but they said that there was people that went around where the houses were blown down and did get some things that weren't damaged. Maybe they thought the people didn't want them or wouldn't come back for them, but they said that they were pretty bad about picking up things that weren't damaged.

I: Was any effort made to guard the property?

R: Well, not that night or I don't even know if they set up a guard or not.

I: Were there many people from outside that came into town--or you wouldn't know except what you might have heard?

R: They said that there were a lot of people in here that just crowded the town and there were so many they had to keep some of them out and some of them couldn't come through. It wasn't so bad here as in the next town. They wouldn't let them come through there at all unless they lived there. They wouldn't even let them go into the vicinity there but they did let quite a few people in through here and this town wasn't damaged as badly as the next one. As they said, there were people from the different states and just from everywhere to come in to see, you know.

I: Did you hear whether they got in the way of the relief work or the cleaning up work?

R: No, I didn't hear that they got into the way of any of the relief work. Maybe they had to have somebody standing guard on the roads and keep them out of town and keep them from sightseeing. I guess in the next town they had set up guard, the National Guard, to keep them from going downtown unless they lived there.

I: After the tornado, how did you get your principal information on how big the storm was? How did you hear?

R: Well, from the people that came to the hospital. My family tried to tell me about the damage that had been done. I really didn't realize how bad things were torn up and how it was until I was out and could see for myself.

I: Did you have any other relative living in the other affected areas--besides Bald Knob?

R: No, I didn't.

I: Did you have any friends in any of the other sections?

R: Oh, yes, in the next town it struck so hard and a lot of our friends lived there and in a small town like that you nearly know everybody.

I: What do you understand to be the principal problem that the tornado raised for the community as a whole--for Bald Knob?

R: Well, housing, I suppose, would be the largest because so many of the places were torn down and there wasn't many vacant houses around in the first place. Of course, places had to be made for the ones that their houses were blown away and a lot of them had set up tents and started housekeeping in them.

Case 5-13

I: Are they working away on the rebuilding construction?

R: Well, of course, they have a lot of forms and things to go through before they start rebuilding anything, I suppose, any of the houses and things like that because right around here they haven't built back any of the houses as yet.

I: What forms are— Well, what do you mean?

R: Well, of course, they have to ask a lot of questions, you know.

I: You mean the Red Cross?

R: Yes. They're gonna help 'em build back—will have to fill out a lot of forms and answer a lot of questions and so they, naturally, they all will have to. And after the forms are filled out I take it that they will have meetings and they decide on what to do about each one. So far I don't think they have held the meetings yet but they are supposed to soon, I believe.

I: As far as you know, is there enough material to build? Enough lumber available to do the rebuilding? Have you heard anything?

R: No, I haven't heard about what they have said about that.

I: What about the supply of workmen to do this rebuilding?

R: They have brought in quite a lot of workmen from other states here, but there are quite a few people around here that could work on it.

I: After the storm, were there any rumors going around about the storm—did you remember?

R: Oh, one that I remember was that during the storm that there was fire in the storm, that there was balls of fire or something. The family across from us said that they remember a ball of fire rolling in and they thought that it would catch fire around them, you know, and that the husband put it out both times and she said that it didn't burn him but that he put it out. That and the hailing—they said it hailed quite large. I can't remember that but several people have said that the hail was quite large.

I: Had you ever been in a storm like this before?

R: No, not anything did any serious damage like this one did. Never once.

I: Have you ever been in any sort of thing that was as bad as this?

R: No. No, I haven't.

I: After you were in the hospital besides your injuries, did it make you sick in any way? Did the storm make you nauseated?

R: When I first went into the hospital I was terribly sick in my stomach, but I don't know if it was just from—I guess it was shock, and a sort of reaction setting in and probably made that because they X-rayed me and I didn't have any internal injuries at all. I guess that's what it was from.

I: Were you able to sleep after the storm?

R: No, they would have to put me to sleep at night for about a week and then I would start going to sleep myself for about three nights, and the third night they had an electrical storm and I dosed off to sleep and the lightning had struck one of the transformers over there and put the lights out at the hospital. I was just about half awake, you know. The lights went out and of course, without even getting awake, it scared me almost to—I was hysterical and they had to give me a hypo. Another time while I was there I was awake and the storm came and it didn't scare me so bad.

I: Well, how did you feel when the lights went out?

R: I guess I thought that I was just back in the storm. I was just about half awake anyway and I just thought I was back in the storm and of course, they were trying to get me to wake up and snap out of it. They brought a light just as soon as they could get a light, you know, after the lights went you, you know, the ones that were in the storm—they came to their rooms with flashlights to tell them that it wasn't bad and everything, because they realized that we would probably be afraid.

I: Do you have any trouble sleeping or anything now?

R: If the wind blows and it gets cloudy and it thunders and anything like that then I have trouble sleeping.

I: Do you dream?

R: Yes, I dream several times. I always dream—I am trying to get my mother out and I have had several dreams about it.

I: Did you hear of any people in town who did an especially good job of helping the neighbors out?

R: Well, I know that these people that took us to the hospital, this man, he had a new car and he turned the keys over to his son and told him to take the car and use it in any way that it should be used. When he took us to the hospital I think he must have been up all night and helped other people, taking them to hospital where they did have injured people and it seemed like everybody helped out in opening their homes to the ones that their homes were blown away. They would have them in to spend the night and so they could get straightened out.

I: As far as you know, did people get medical care just as soon as possible? Did everybody have medical care?

R: I think they got to them pretty fast. Of course, they couldn't tell just by going along who was the worst and who wasn't. I know that my sister didn't get any help until the next morning it seemed like or early into the morning, and she was really badly injured, but they just couldn't tell, I think, just who was hurt the worst, because they took her husband and treated him before they did her and his injuries, you know, weren't nearly as bad as hers. He tried to tell them, but, of course, they thought he was just hysterical, you know. He tried to tell them that she was hurt a lot worst than he was and of course they thought that he was hysterical and did not think that she was hurt worst. I think they were really good and got around to us just as soon as they could. Then doctors came in from other towns and nurses, too, just as soon as they could get there, you know, and they pitched in and helped them out just wonderful.

I: Well, just how soon did they get the people out that were hurt in their homes; just how soon did they get the people out into cars?

R: Well, I think they had made arrangements to take all of them to the hospital and got part of them there and everything. Of course, there were some places where they had to dig them out and everything, you know, and they did find in the next town some people that were buried and were still alive but, of course, it was the next day, maybe.

I: You say—what about the people that were hurt?

R: Well, they were found a day or two later. Maybe it took them that long to get to them because they didn't know about them, you know, and they were just getting to them as fast as they possibly could.

I: What about the local leaders here in town? Did any new people become local leaders as a result of the storm that you heard about?

R: Not that I heard about especially during the time they were needed. A lot of people worked, I guess you would say, as leaders, you know, supervising people that hadn't done anything like that before.

I: What kind of people were they?

R: A lot of the women here in town worked with the Red Cross and issued the clothing to people and I really don't know how else they did help. I don't know how that worked.

I: Did you hear of any people, maybe any types of people, that could have done a little more than they did to help out?

R: No, I haven't heard anything like that.

I: Generally, do you feel that the storm changed the community life in any way?

R: It's made people friendly, a lot more willing to help each other because

it seems like it has brought them closer together, you know. When they saw that they was needed they pitched in and helped, you know. It's made them better friends because when they seen that they was needed they pitched right in and helped. It seems like that's helped a lot.

I: Can you tell me some more about that?

R: Just working together and helping each other and helping the ones that needed help. It brought them a lot closer, made them better friends. It brought a lot of people together that never thought much about it before. Made them more aware of being friends.

I: Has it changed the community in any other way?

R: I really don't know about that. It makes people closer and more willing to help. They worked harder and figured out ways to help other people, where maybe before they weren't even concerned with other people—it's made a lot of people want to help.

I: Have you heard any suggestions as to what the community might do to—in the event of another storm?

R: No, I really haven't heard that they have made any special comment.

I: Any special plan?

R: If they have, I don't know about it myself.

I: Have you any suggestions—what suggestions do you have to give to people who find themselves in a bad storm? What should they do?

R: I really don't know what would be the best thing to do. I just couldn't tell you, like if they were home like we were and didn't have time to go anywhere. I don't know what would be the best thing to do—they just knew they'd have to stay in the house.

I: What would you do?

R: I think it would have been better if we had gotten close to some solid heavy object even if it had pushed against us—maybe it could have kept a lot of the other things from falling on us. I think my brother-in-law was closest—they were all by the big chair and I think that must have protected him some because he wasn't hurt as badly as the rest of us. A thing like that would protect him from behind and even if it hit him, it could shield him from other things that were going through the air that might hit him.

I: Have you any other suggestions that people could do?

R: No, I guess I haven't. I haven't thought about what would be best.

I: Do you feel that the storm changed you in any way?

R: I can't say that it really changed me except of course it's made me aware of being grateful for what you have and being thankful for it, if you have all your people well, you know, and with you and all like that. Be thankful for what you have and not envy anyone else for what they have. 'Cause that just shows you how easy what they have or anybody else can just be swept away in just a little bit. You can say it's made me more humble. I can see where I've got a lot to be thankful for, you know. Even though my home and everything we had was destroyed, and I lost my mother, I can realize that we still got a lot to be thankful for because there was a lot of us in the family—we could have lost more than just one.

I: Do you still think much of the storm?

R: No, I try not to because I know it's not good for me, you know, especially in my condition. I try not to think about it at all but sometimes in spite of that something will happen, you know, and I find myself thinking about it but most of the time I try not to think about it, about mother getting killed in it and about our home getting destroyed because it depresses me and I know that's not good for me in my condition, so I try to think about something else as much as I can. I think about other people and what they've lost so I don't have time to feel sorry for myself.

I: Can you think of any other suggestions that might help anybody in a storm?

R: I really haven't thought about it enough that I could say, but I think it could be worked out, things that could help other people. You know, if you just sat down and thought about it and talked the thing over and what they'd need, I think there could be ways figured out that could help them more.

I: You don't think of anything else—that might help them?

R: No, it's just everybody working together so we can try to get back places to live, you know, and things to keep house with. I know there's the main thing because there were two families living here with my sister and there were two living here before we came so it's awfully crowded and it's hard on everybody, too, but they've been good enough to keep us here and look after us after we got out of the hospital, you know, and I know that everybody hasn't got people like that so something could be set up where people could take people, maybe after they got out of the hospital, you know, and take care of them so they could be walking around. Because someone who has been discharged from the hospital is still not able to get around hardly or work. Some of them have to stay in bed and things like that. I think a lot could be set up to take care of people like that when they didn't have any people to take care of.

Appendix A-6

The respondent is a 71-year-old semi-invalid who was sick in bed at the home of her son-in-law when the storm struck. There was a few moments' warning and she and her daughter were trying to get her grandson, who had been standing beside the bed just before it suddenly became dark, to lie down on the bed with them when he was blown through a hole in the roof and killed.

Although she was not seriously injured she had to be carried out of the wreckage by her son-in-law. She suffered a number of psychosomatic symptoms and tried not to learn about the fate of friends and relatives for fear that they might have been killed. Many friends and relatives were killed and her home was destroyed. She had had a previous experience with a tornado and hopes that she will not live to see another one.

I: Mrs. Dill, what I wanted you to do would be to just tell me what happened in the storm.

R: Well, I'd been in bed a couple weeks, not able to be up. Well, when the storm came up the little boy had got hit in the face the day before with a ball and made one of his eyes closed. His mother says, "Honey, don't run back to the door--it's going to rain hard." Well, a she came to my bed and sit by me and he sit down in my rocking chair about two feet from the bed and I said, "Oh, Mercy! Let's go in the middle room--I believe it's going to blow the windows in on us," and she says, "Grandmother, that's just about to happen." I said, "Daughter, I believe the storm is going to blow the house down." I said, "Billy, where are you?" He said, "Right here, mother." Well, she said, "Reach my hand, darling, and get on the bed with grandmother," and we both reached as far as we could for him and he could have easily been reached if he had reached out his hand, but he didn't answer. We found him about, oh, twenty-five steps out in the yard. Blew me and my daughter up to the ceiling nearly--took the bedstead out from under us and let us back on the floor. Threw that bedstead into the corner--spun the dresser and everything left in the room--down to the floor where we was at with the rubbish what had come in on us. But we just got a few bumps and scratches but of course it rained all our stuff but we don't value that. It's the child's life. A sweet lovely boy. Lived right with him and by him all of his life, except the time I went to California to visit my other children. He always came to grandma with all his troubles. Her husband was out at the store, blew it all away down to the ceiling and the front glass window--cut his hand bad and he ran back into the back room while the rest of us was in where he had had a car shop--just lifted all of that and taken it away and most of his groceries was destroyed. He had a grocery store and filling station.

So we screamed for Billy, the little boy, and quick as he could get out he [the son-in-law] ran to us. Well, everyone else was in the same shape we were--screaming for help. They lifted me up, body and soul, and carried me out and put me in the car--ran back in the house and got a mattress and put it out to the store building in the wreck there, and laid the little fellow out on the counter at the store. Pretty soon an ambulance drove up and brought me and my daughter to the hospital. We haven't been in the habit of being in here much. We didn't know where to find anything and I was freezing to death. I was just in my gown wrapped in a wet blanket for three hours. But we were luckier than some who lost two or three out of the same family--and not one stitch of clothes left.

The little house that I had lived in with my son-in-law since last July.... I just left my things there and most of my clothes were over there. But it didn't blow--plumb down--you see, but ruined everything in my kitchen except my ice box. My son-in-law don't think the ice box was hurt. But that's immaterial, you see. That doesn't make a difference. I had a wonderful lot of dishes--never broke a one--they tell me. I haven't been back over there. I didn't realize that anything had happened to anybody, only us in the store there. I said, "Take me over to my sisters--" lives right next door and she said, "Grandmother, we can't do that--Aunt Sara

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"I." stands for the remarks of the Interviewer.
"R." stands for the remarks of the Respondent.

doesn't have a home any more than you do. It's blown flat."

So of course they laid me on a stretcher and put me in the ambulance. I couldn't see anything and I haven't been back. I don't want to go back. I don't want to see it, you see. It's just too horrible to think about. I don't know what to do. I've had a wonderful bunch of children. They'll help what they can. But it will make it hard on them in other ways but I'm not worried. Everybody has been so wonderful to us. Most of them that's been over here. Coming to offer to help us—anything in the world if they could to help out. So we—all that's been done for us. Offered us bedrooms in case there wasn't room—rooms for all of us to sleep—and things like that.

We bathed and had...Mr. C.'s sister-in-law...came down and carried down ...mattresses and stuff, you know, out in the country where it could dry them...wool blankets that I had wrapped around me—of course it was wet but sent them over to the cleaners and my son-in-law from Mexico paid to have them cleaned—and my coats and things—so I would have something. What he had saved had to be cleaned so we're awful thankful for all of it. I just wished everybody else in that line came out of it as nice as we did—to have a change of clothes, anyway. I don't know anything else to say since I hadn't seen any of it. 'Course I couldn't see out of the ambulance. Didn't want to, either. Stayed in the hospital about three hours, finally come in contact with Dr. A. and he asked me if he could get me something—you know—as a bracer—and we said "Yes," and he fixed us a bottle of medicine and we just come on over here and give room for the people that was more seriously hurt. And we had him out the house a couple times since we've been here. I don't know—I just been all knocked out with all the winter as far as that's concerned. But this hasn't happened because of the storm—I've been so nervous—can't be up a little while of time not to amount to anything—upset stomach causes gas, you know, and I suffered a lot.

No, I said I wasn't hurt nowhere, but I found that the top of my head was just cut and that's the reason I was afraid to do much with it. Just a little jag hole from glass and stuff like that. And I had an awful bruise on my leg and a thick cut gash on my heel. I didn't realize it was going to—that place on my heel was cut. I asked the doctor to look at it the next morning when he came over and he gave me some shots to try to keep me from taking cold—infections. I got quite a bit of bruises. There is one on my hip right next to the spine that still gives me trouble—it aches. And my daughter was just...her legs and hips down there, they black as dark. I just knew that her shin bone was cracked. She went to the hospital to the doctor and had a thorough checkup and he said, "No,"—he didn't really think it was, but gave her some medicine to bathe them in and had her to wrap them in hot packs—a hot water bottle—electric pad—on her and they just made it so she was warm. And she's so miserable. Of course she can't be still. She's laid in bed whether she want to or feels like it or not. They are so crazy. They both were old before they had a baby and he was just a little man—that's all. A real scholar in school—pass the seventh grade if he had lived. But that's what we all got to do—just give up when the good Lord calls.

Case 6-3

I don't know of anything else I could tell you that would be of any interest. We are just hoping and praying to get well. To get back on our feet and all and feeling better. Physically, why then we can stand the burden better. I don't know whether I can go back over there and stay with them or not. It will never be the same. I just dread being over there by myself--how nervous I am. My son told me last night, the first time I asked 'cause I didn't want to know--that glass or something struck the jugular vein in his neck. He was dead minutes after he hit the ground, I guess. Fell in the front yard 'way over by the shade tree. I had never asked what kind of a lick it was, you know, 'cause I knew it wasn't in his face 'cause they had been up to the undertaker parlor and looked at him. My son said, "Mama, he looks just as natural--just like he was gonna say, "Hello, Mama." I was too sick. I had to stay in bed. So I just remember him like I saw him last. When he stood by my bed, eating an ice cream cone. That's the last I saw of him when he took the last bite of the ice cream cone in his mouth then. It was so black dark we couldn't see anything, of course. As soon as it turned dark, his mother hollered, "Eddie, where are you?" "Right here, mother." And then we asked him to come over on the bed with us and he never did. I feel like he just rose out of the chair to come in time for the wind to suck him right out because he right out the way the wind was coming from you know. Back east. The wind was coming from the east. Oh, I'd say, twenty-five thirty steps. Well, there was one man and his wife and a little baby at the store in their car and as soon as the storm was on they got in the car and drove out, passing my house. Didn't dare start out, you know, and timbers were beginning to fly and, well, it blew the windshield on the little baby and she leaned on him with the little baby. Well, they just protected him, you know, kind of with the arms on account of laying down and all, and none of them hurt and they kept screaming for help. Andrew as quick as he could, why, he came and said, "Peter, come help me get them out of here," and he started and I was kind of...I says, "Find Billy--I'm all right," and Peter said, "Here's somebody out here in the yard." ...come on after me then and I said, "Andrew, leave me alone. Go ahead and find little Billy." I said, "I'm all right." He said, "Grandmother, our poor little Billy's dead." Oh! You don't know how I felt. I don't think there is anything else I can tell you of interest. But I'm glad to do what I can.

I: What were you doing--how many were there in the house at the time just before the storm?

R: There was me, my daughter and her little boy. Her husband was at the store, you see. He had a little store, grocery store, filling station.

I: What were you doing at the time? You were in bed--

R: I was in bed and had been for two weeks. I had to eat every bit of nourishment I had taken sitting on the side of the bed, you know. Hadn't even gotten off the bed to eat. This kidney bothers me so much and it has for years. My last baby boy was born thirty-two years ago this coming May. And I was an awful attack of kidney and bladder. I've never gotten

over it. And of course our home doctor has attended me ever since before then. They was injured. He was down at the drug store in his office and his wife was over at the house, had a big 8 or 10 room rock house. Just had a $7000 overhaul job. Just blew it to shatters except one bedroom and two living room chairs. And the brick all come in on him at the drug store, had to dig him out. Came out with a broken arm and he thought just possibly some bruises, you know, at the time. Of course they got him over here to the hospital as soon as they could but they said it was already filled up. So they ran him and his wife on to Little Rock and they're still down there and he'll be there quite a good while 'cause he's got three or four vertebras busted in his neck as well as a broken arm, and I didn't know what else. I think his wife is coming along OK. This is more painful but not fierce like the doctor's. I don't know what in the world people would do over there without him. He's been there so long, ever since before World War I, then he had to go to World War I, you know, and came back. He's been there since. You know, we just look at him as our daddy. He's a wonderful man.

I: What about your daughter? What was she doing about that time?

R: She ran out the back porch—we have a big concrete back porch—screened in with this sun-ray glass framed in for winter, see, to keep out the cold winter—screen door was stuck open and I said, "Daughter, shut that screen door and be sure the back door is shut." Because the wind is making that screen slam and I think it's going to rain real hard, maybe, and I didn't think anything about it because it hadn't lightninged and it hadn't rained much, you know—it hadn't thundered much and she said, "I don't want you to go back to the store now—you'll get wet." "I'm not going to, mother." Well, he set down at the kitchen table and she said, "You're darn right, son." And I don't know, anyhow, she didn't let on to me because I was so frightened anyway of a storm that she knew it was going to be a storm and she said, "Come on in here with me and grandmother," she said, "Come on in and be in here with me," you know. And she just got in there and said, "Lay still, mother," and I said, "Oh, I can't lay here the way that wind is blowing." I said, "Let's get in the middle of the room—of the bathroom somewhere there was no windows." And even put one foot off the bed and scooped up one house shoe that way, you know. I said, "Let's run in there," and she said, "No, I don't want you to get up with that cold." She made me lay right across the bed. Well, I had a mattress on top of the spring and she just grabbed that, you know, and tucked her head under it and covered me over with it and she just laid down on me. That's why she got so many more bangs than I did. You know, she just bent over me to protect me.

I: When was that?

R: During the storm. And just then I heard such popping and cracklin; I thought it was blowing against the window and I said, "Lord help me because it's gonna bust these windows out." And then I tried to turn my head and saw the windows just a-caving in—coming right in on us. That's the last I could see. It was so dark then. I didn't see anything else until I got out in the car.

Case 6-5

I: How did you first know about the tornado?

R: Well, I really didn't know it was a tornado. You know when it just scooped us up--that is what I thought. 'Til I got over here at the hospital and Oh, Lord! --the people, they were laying on the floor all around you. I never got further than in the hallway. No rooms. You never heard the like of the screams and the moans and dying and babies crying--I said--I well I can't take this. I said, "the noise is going to kill me. I said, "Let's have the ambulance carry us over to Alice's. If I could get a hot bath and some hot packs and settle down--." Told me to get me warmed up and I'd feel like I'd feel all right and maybe tomorrow we can get hold of some of the doctors to come and see me if I can't come out. So that's the first I realized--it's the whole town.

I: When did you first notice that anything was wrong?

R: Well, you mean before the storm?

I: Yes, I just--no, what were you doing before the storm?

R: I was laying there, had been listening to the radio but the static got so bad I turned it off not more than 10 minutes before, and I said, "Stay all night, Mary." She lives alone. She said, "No. I gotta go over to the house." I said, "That's going to be so stormy looking and rainy all night and if you don't sleep you'll be so lonesome. She said, "Oh, I'll try to sleep before any storm comes up." So I know it must have looked bad to them but, I don't know, I had an awful dread all evening. It seemed like I felt just so depressed and I said to her when she refused to stay--she was afraid to stay--afraid it would bother me. I said, "I just feel like I'll die if I have to stay in this room by myself tonight." I don't know why I felt that way. I just don't know. Forewarning, I guess. Seem like just before the storm everything got just so still, so extra still, just almost suffocating in the room, just like it was too hot to think about. And I just had to turn off my little heater, gas heater, just a few minutes before. But there's always, they tell me, an awful lull just before a storm.

Forty-nine years ago the 7th of this month I had to dress five out of seven that was killed in one house, storm had come within half a mile from where we lived.

I: When was that?

R: Forty-nine years ago the 7th day of this month. I never will forget it. It was all of one family but two. They had one little bit of a baby just a-crawling--that whole house--even the pillows--we had a wonderful house over there--concrete foundation, rock wool insulated throughout--top to bottom--double hardwood floors, should have been strong. If it will move things like that, well, what about those buildings--big stone buildings down there--our church is just--we just begin having service

in that from being rebuilded two years the end of this month. Just ruined it. They say they're gonna practically have to go from the floor. It's a Baptist church. Every one of the churches was hurt but this one wasn't so bad. It's tore up--part of it--but the Red Cross worked there.

I: I wonder why that one wasn't hurt as badly as the others.

R: Well, that's just what I don't understand. That old big hotel right straight across the west of it when you turn around coming to 67 in Judsonia--that old building's been there, oh, 40 years, and I felt, you know, a wood building would have been easy taken out...Now that little old alarm clock in my room has been sitting on the chest of drawers and made a partition, you know, next to the living room. They said next day that little old clock was just sitting up there, just ticking away. Just like nobody's business. It hadn't been moved. It didn't move the chest of drawers out. But it blew the dresser and busted it all up. Blew the glass mirror plumb across the room and on my daughter's back. The nails kept sticking her and she reached back with one hand and helped me with the other and got it off me. I told her it wasn't even broke, not even scratched. Now just such things as that would happen. Why they found pictures. I just got three little grandchildren. My son who got here this morning has got three grown children and they're the only grandchildren I have. There is three older ones and they're grown and married and these three little ones. My daughter has a little boy who will be eleven in August--they live in Mexico. And then my son who lives in California has a little girl and they have three little ones and I always said I would sew for them and do anything as I had to have a little extra money, so the little children would have birthday presents and Christmas presents and the others couldn't understand. But I was just crazy about them all.

I've been awful bad and helpless but they realize that us being jammed up and living like this 'til we can do better--get back home. They'd just be in the way, you know what I mean. He sent the children to church they were so afraid that they--if they miss that church--they wouldn't be able to get on later on--and they'd have vacation. They said they felt like they'd just die if they couldn't come in summer--they'd sent it back in time...build it up.... Now we've always been poor folks--yes, I've raised a wonderful set of children.

I: Before the storm, what was your daughter doing?

R: She had just come from the store a little while before. She runs out and helps her husband put up the groceries. And yes, she ran and fed the chickens. I had a pen of chickens and she did, too, you know, and she said, "Mother, It's early but now I'm going to feed them chickens 'cause I think it's going to rain." I said, "Well, wait now, don't go around and get wet." You see, it hasn't been long since she had a serious operation. She wasn't fit for nothing like this, besides the grief of the loss of the child. She just dashed in and out that way and in and out, and she had said, when the little boy came in, "Billy, why don't

you make daddy close up and come on in." She said, "It's going to rain hard and I don't care if it's not but five-thirty. It'll not cease when it does set in 'til it'll be dark and they close about six." He said, "Want me to go back out and help daddy?" She said, "No, it's already sprinkling and I don't want you to get wet with that eye all swelled up like that." He said, "I believe I'll go help him." I didn't say anything but I just thought I couldn't stand it if she went out 'cause it looked so dark and all. So she went and shut the door—I guess she saw what the sky looked like so she didn't go and Andrew being in there with us—he probably would have been just where he is today, you know, just wanting to be in the hospital—all of us would have made it—and again he might have drug the little boy off into some other room and saved him. You just can't tell, you just got to think of them things. Somebody told in here yesterday that, someone said, "Well, it's too bad that Billy decided to run back to his daddy at the store because he was scared." Well, that wasn't so. He didn't, you know. They just imagine that, you see, because he was outside.

Well, there wasn't no wall plumb down to the floor on all east and the north and my rocker was, well, I'll tell you—the bed sat with its head to the north like that and the sewing machine was right pulled right against the side of my bed so I could have my radio if I just reached up there, and then I had a big rocker right next to the sewing machine. It was rocking, but, you know, that rocking chair never moved one inch. There sat that rocker just where it sat all the time. There wasn't a thing the matter with it and nothing hadn't hit it you could see, or nothing. Of course it picked up stuff like that and trimmed it over in the little old front room. They just got their furniture—they have got a little of it together and what I had over there I just piled up in one room. Of course the roof is all drifted off the back of my house—that's why it banged up the stove. And it blew two-by-fours off of that building somewhere straight through my wall, the front room wall, eighteen inches plumb on through a double wall ceiling. Andrew picked up twenty-two 2x6's, I believe he said, twenty feet long, from the high school over there in our front room over there. Just a partition or something—and shuts off that old built up roofing—that old tar stuff, gobs of that. It just leaned up against the foundation of that house and where the porch would have been if it hadn't done blew the porch away. He said it taken three men to lift it—he guaranteed any one of them pieces nearly weighed as much as 500 pounds. He said, "Lord, if I had been in the front room there wouldn't have been a ghost of a chance. It just shook them 2x6's plumb on through there." And still she had a beautiful dining room set, china cabinet, buffet, and she had two of these little night lamps on her buffet. One of them blowed over and the other one didn't even blow over. Not a dish broke in her cabinet, her china cabinet, sitting up there but then of course there were things and stuff hitting the side of it and ruined it, I guess, with the water and all. You just can't imagine, see things and just know for a fact what will happen and how. Oh, it's dreadful.

I: You said you had an awful dread all that evening? How do you mean—an awful dread?

R: I just felt miserable, you know, and lonesome or something. Just like something was going to happen. That's the way I felt when the storm came 49 years ago. My husband was farming then and my sister lived there in with us and I saw the heavy black cloud laying there in the southwest, you know, and for a time I said, "I do hope Jim wouldn't work so late," 'cause he went way down to the bottom field—"and come on home." It just looks so stormy and in a way I feel just so miserable and seem like the air just pressed you down all evening. Of course we had cows to milk and chickens to feed and I got around and did all that and he came in. 'Course he was tired all in—it was the spring of the year and was tired. He went to bed by seven-thirty, I guess, 7:15, maybe. It wouldn't have been more than dark if it hadn't have been cloudy. Well, I went and looked at the cloud again. I wasn't afraid then and couldn't get out of the habit that my father was always crazy about storms but he didn't encourage it so I just stayed in bed and got where I didn't notice it so bad. So finally my sister Roberta said, "Well, let's go to bed." And we crawled into bed and George, he of course wasn't sleepy. It wasn't bedtime. Roberta, my sister, said, "George, cover up—you hear that big old thundering." —She'd say, you know, and he would pretty soon say, "Well, I just..." and Mr. Dill's brother pulled up to the gate and began to scream and I knowed it was something wrong. Of course we didn't wake Jim but he said, "Come on and get down here as soon as you can. Mr. Hall's house is blowed away and they all trapped under it—his big old log house, and Prince's folks blowed away and I don't know who all. And they needed help."

Of course I got Jim up and he got dressed. Well, my sister was so nervous she just flew into a nervous fit. I never saw such a rain and hail fall like in that storm in the world. I just had to stay with her to help her. By the time I got her quiet some man come to the door and said, "Someone here?" and I said, "Yes." He said, "Will you come over to my house, my wife's sick—she's going to have a baby." I said, "Yes, I'll come. Well, I don't know what to do with Roberta." I knew better than to leave her there with the baby—she was just so nervous. He said, "Well, let it come up there to John Tracy's right by us and if she needs you she can come get you." I went up there the rest of the night and saw that baby born just after such a storm. They made it all right. The next morning I went home. I tried to hitch me a little ride back and get down there and try to be of some help. About a mile from where we lived. Our flue had all blown off from the top of the house so I couldn't make a fire to cook breakfast so I went on down to use mother's. Then I went up there and worked. I worked forty-eight hours and I never closed my eyes and helped them make shrouds and things to bury them in, these poor people, and besides everything had blowed away, you understand, and that's what his parents wanted and that's what we did. I sewed day and night for forty-eight hours. Nobody can ever do too much for a person in this kind of distress. I don't think.

I: What does that do to you, that feeling of dread?

R: Well, it just ties your nerves all to pieces.

I: It does? In what way?

R: Well, I don't know how to explain. It's just every little thing. It makes you jump and shake and quiver. Just a nervous wreck. I think that's one thing—I'm not feeling any better now. I just can't quite get over that yet. If the weather would clear up and stop being cloudy. About 1:30 one night, thunder woke me up and try as I could I just couldn't get back to sleep.

I: Why do you think that was?

R: Just nerves, that's all. I didn't feel afraid or anything but I was just nervous. Of course it was just raining and raining and raining—kept raining until yesterday morning but after I heard it thunder, that was all of it. Then I had gotten out of a lot of that in the last year or so. Here several times this spring my children was fixing breakfast—did you ever hear such claps of thunder and lightning? And I remembered and heard it, you know. I felt pretty good. My nerves wasn't all on edge and I didn't even wake up and move. It just jarred the floor a time or two. I didn't hear it. I didn't know a thing about it so I guess it's just nerves. I don't know what else. The doctor said the other day here, all this happening, of course, is against me getting—feeling better because it's just got my nerves so torn up, my food didn't digest. I don't want nothing any time. I just have to force myself to eat but I've been that way ever since the first drop of rain fell.

I: What was your son-in-law doing about that time? You said he was in the store. Had you seen him at all?

R: No, I hadn't seen him since he went out from us at noon. No, I don't know what he was doing. He did tell us that he was at the desk when it knocked out the south front window putting down a list of stuff, a charge account. He said all at once it just blew that rain on the concrete front and blew it up against the window and said, "I just stuck that stuff in the drawer and jumped up and got farther back from the window, but not in time." The window come through in pieces and just split his hand to the bone. That's the only bump he got. He went back and got in the archway like a double door—they just got that for the groceries and another little compartment like that, it was just tin, sealed inside, flour and things like that. Said it just got right in that partition. That's what he told me. He just stood there—there was another man in the store—it was his bill of goods, a Mr.—I don't know—I can't call his name. Mr. Bonner, well, Bonner—seen this big wind, ran behind Andrew and went behind the meat box but that's plumb back in the next pen. Pretty soon it jerked every bit of that loose, meat box flying, meat, and he had a big showcase back in there that he didn't have room for in the front. He had had to move from a big store and had thread, and all kinds of notions and things like that—it was all open to the rain there.

I: When did you next see your son-in-law?

R: When he come to pick me out of the rubbish after the storm. You see, he sent us on over to the hospital before the ambulance came for Billy, the little boy, you know. He said, "Grace, you and your mother go on. I'm not hurt. And he said, "Have something done. We've done all we can ever do for Billy." But rather than wait for an ambulance some fellow that lives here in Searcy, a cookie drummer—he fixed his cookie wagon, laid that child in it and brought him to the undertaker parlor without charge. So Andrew got in his car and come on over to us and see how what we was hurt. But my sister that lived right next door to us, she crawled out of all of her rubbish, a two-story house, her's was, come down on her and the ceiling fell on top of her. Chest of drawers—and held up off her and that's the only place—and all the beds and dressers and things come down on it. She never got hurt or a scratch here and there. Well, she, something bumped her back but it didn't amount to nothing. She had on a smock and something heavy caught and she just pulled the thing—she was just like me—she was so stunned. She crawled up in the car by me and acted plumb stunned and Andrew said, "Aunt Sara, we'll take you and mother to the hospital." And she said, "No, I'd rather not go. There's a few things back in the house I want to try to get; my pocketbook's in there and have about $180.00 in there and I don't know who will prowl." Well, Andrew said after we left she got out of the car and went back over to her house and got what she was after, and after that crawled up in the car like she was going to spend the night, and that's what made Andrew so late getting over here to us. He said, "I couldn't go off and leave Aunt Sara sitting there. She wouldn't let me bring her with me. She said, 'Oh, just take me anywhere near this house.'" Well, they like to not found a house any place in town. Had two nieces down the street and she stayed there until the next day and her son come got her and she's still over there with them.

I: How did your sister act when you said she acted stunned. What did she do?

R: Well, just unconcerned, looking around, you know. I said, "Oh Lordy." My sister-in-law that lived in the two-story house northeast of us—she's been an invalid for three or four years—upstairs in her room, never been downstairs. I said, "Oh, Lord help me. I wonder what about poor Ella—if the top of the house blew off with her or what become of her." I said, "I'm afraid to look." Sara said, "I'm not." She just rolled down the blinds. She couldn't see because Andrew's window glass was off and said, "No, Ella's room's still there." I said, "Well, thank God." But she kept—well she was freezing and shaking, from nerves and "Someone," she said, "I don't know who picked it up—got one of my quilts in the car." I said, "Raise up, Sara, and put the quilt down. She was wet as a dog because the window was busted and it was covered with glass—raised up and I put that dry quilt around her. Andrew just wrapped her up like a baby in it when he come to her, picked her up body and soul and put her in the front seat and carried her down...She didn't know where she was, or what she was a-doing or nothing. I said, "Sara, aren't you hurt worse than you think?" She said, "No, no, I'm not hurt, I'm just stunned." She said, "Just look what can be done in a minute"—you know it seemed like it wasn't more than a minute or two. They figured the time at three minutes from the time it started and ended.

I: Were there times during the storm that you didn't know what was happening to your family?

R: Well, at the time I just blacked out, in a way. I didn't know when Lilly left me to go tell Andrew to come get Mary to hunt Billy. I didn't know when that happened but I was a-calling Billy every breath, I knew that. Just as loud as I could scream, why I was a-screaming, "Billy, come here!" But now she tells me that she went and a-got a mattress, carried it out there to lay Billy on, and her and Andrew ran up after me. Andrew said, "Leave them blankets around you even if they are wet." Just had two wool blankets on my bed. He said, "Can you walk?" Why, I couldn't anymore walk, and he helped me up off that bed, as if I didn't have any legs. Of course I'd been there two weeks and I was just weak anyway. I was just weak anyway. She screamed down and said, "Andrew, Mama can't walk, you know she can't," so he said, "O.K." and he just pushed the blankets a little further around me and picked me up like I had been a little baby and carried me out, over all that rubbish and stuff and I don't see how in the world he carried me that far. Sure don't.

I: And your daughter—then she—at the time of the storm—you said she bent over you?

R: She sit down on the bedside and I was laying down, you know, and you sat down on the edge of the bed this way and I jumped up—I couldn't lay down on the bed. She just grabbed the feather mattress and had me to lay right on the bed, my feet was hanging off the bed, I was crossways. Just pulled that feather mattress and she just kinda lay down on me with her elbows and held it, this mattress. She got one bad place on her elbow, of course. She had on short sleeved dress.

I: Why did she do that—lean over you?

R: Well, that was just to help protect me, you know. She was afraid if I got a wetting—I had pneumonia and she was trying to keep me from getting wet.

I: Was that before she knew about Billy?

R: Oh, yes. She thought Billy was—she said, "Mother, quit screaming for Billy. He's here somewhere. He was right in that chair a minute ago. He's under this rubbish maybe somewhere." Well, that didn't help—because I felt like if he was, he was killed, and she began, she said, I didn't know she got up away from me. She began to call and lift up things, she said, and she couldn't see him and she screamed out loud for help and she saw Andrew running to her and this Peter—and Peter stopped when he saw Billy out there and said, "Andrew, there's Billy or somebody." Andrew ran and fell down on his knees he said and seen he was dead.

I: Then what did Andrew do?

R: Came on and got me and stuck me in the car and then went back and got Billy. Laid him out on the mattress there at the store, spread a blanket or something. I don't know what they got a hold of.

I: How long was it before you found out what was happening to the other members of your family?

R: Well, of course that was the only one that wasn't right there with me. I would say about five minutes from the time--from the time we really decided that the wind wasn't blowing any more, so hard.

I: How did it make you feel, not knowing what was happening?

R: I can't describe it, I don't know. I just went wild, I guess, and I screamed every breath for Billy.

I: How did it make you feel inside--did you have any...

R: Sick.

I: Sick? In what way?

R: Oh, it felt just like I had to vomit. Oh, I was just deathly sick.

I: Any other way?

R: I was choking to death from water, I guess, just opening my mouth and screaming for him. You see, the house was well insulated and then it was sealed with this beaver board--it's got that chalky stuff in it. I guess I just got a mouthful of that, oh, grit, and other stuff. I couldn't swallow to save my life. I said, "Is there any way to get me a drink at that pump there in front of the station?" So Andrew reached into the Coolerator and give me a drink, but oh, I couldn't swallow or nothing, it just wouldn't go down. Just kinda washed out my mouth, get some of that grit out. I didn't want to talk or nothing.

I: How long did that last, that feeling that you had? Do you remember how long that lasted?

R: Well, for a couple three hours or more--because we'd done got me over here and put me in the bed in dry clothes--put hot water bottles and things to my back and my stomach and all--and then really got a clean drink, just water, rinsed my mouth. It wore off pretty soon.

I: What do you think caused it to wear off? Or relieved you?

R: Heat, hot pads, and things. Got my circulation back. That's all I can say. Oh, I was never as cold in my life. Yes, I just had on a thin gown, that's all I had on, not even stockings or anything. Of course those blankets kept the wind off but they was just as wet as my gown. My head was wet. My sister got in the car. I said, "Oh, I've just got

to have something to dry my hair with." It was so wet and cold when the wind would strike. "Well, I don't have a thing." When I looked down she had on a little old apron. I said, "Give me that apron," and she said, "It's dirty," and I said, "I don't care--I want something to dry my hair." And I went to dry it and I had on a net. Oh, all that stuff that had blowed in my hair. So I got my net off, dried a little bit and I folded the little old apron and tied it on my head. You'll never know what it is to get clean again. I ain't got much hair but it was pretty but it is still so dry--washed it good a couple times but it's not at all right yet.

I: When Billy asked you what was going to happen, did you have any--how did he seem?

R: Well, not frightened. Said, "Grandma, what is happening?" I said, "Billy, I'm afraid it's a storm and it's going to blow the windows in," and just a thought I said, "Billy, where are you?" "Right here, mother." Just like that. He was sitting the chair. He done just like she told him.

I: How else was your daughter injured? She had all these bruises?

R: Bruises and cuts when the bed went on her elbow. She still has to wear band-aids on her--it's running puss.

I: And your son-in-law--he had any other injuries?

R: Not a one. It just laid it open from right here down but he put a band-aid on it and cleaned it together, and we've been putting things on it to put it together. It was a lot better last night, just so it don't swell.

I: When there were no lights and before the ambulance came do you remember what you did?

R: I first thought a-sitting in the car, "Oh, my Lord, am I blind?" and I put my hands up. I had my glasses on, and I still had them on just like I have right now but they was four times thicker than now. That old junk blowed into them, inside and out. I had to scrape it off with my finger nails and I couldn't see a thing and that's why I thought maybe I was blind.

I: When you put your hand--and you thought you were blind, do you remember how you felt then?

R: Well, I just had that thought. "Oh, Lord, am I blind?" and I put my hands up to my eyes.

I: Do you remember how it made you feel?

R: Well, there was cold shudders running over me, of course, at the thoughts of being blind, but I was greatly relieved when I felt my glasses.

I: When there were no lights and everything--what did you do?

R: It wasn't dark. We left out of there in an ambulance about just dark. Of course, the street lights would have been on then but it still wasn't dark when we left. It would have been in a few minutes-- They didn't have no lights over here or over there. It knocked them out over here, too. We didn't have a sign of lights for three nights after we come home.

I: You said you felt lucky, in one way. How do you mean you felt lucky?

R: Well, I just feel I was much more lucky than so many other neighbors. One family there, the elderly lady was killed, a younger mother, four little children with back broken and her daddy-in-law that they lived with--he's still in a serious condition--and they didn't have many clothes to commence with and now they don't have any because it didn't seem to leave one splinter of their house, clothes or nothing. I'll see anything before a mother be taken away from little children. My daughter is just like me. She said it might sound selfish, well, she has a cousin over there has six children. She said at the cemetery the other day, "Lilly, it's hard for me to say this. Now I love my children dearly but if it had to be just one out of this end of town, why couldn't it have been one of mine and I'd had some left and you don't have any." She's just that good.

I: Why don't you want to go back over there, do you know why?

R: Oh, so many things. All my friends, not but a few are going to move back out there. Lived there for twenty-seven years and lived there before for a long time. In fact, when I was young--and there is scarcely any of the neighbors that's gonna be there. I lived there twenty-seven years and I have three sisters, never did have but the three sisters, lives about two blocks from one another. Every one of their homes ruined, you see.

I: You don't think some of them are going to go back? Why do you think that is?

R: Well, they're just like I am. They're old and about lived their life and they don't want to have to look at the wreck nor ruins of it and think it over. There's Mr. W. over, been there for thirty-five years, I guess, had a little daughter and son. Well, his son run a grocery store with him and last two years Mr. W. has not been very well, has heart condition, and his son and wife ran the store. Well, it blew this son's house down, killed him and his little girl, left his wife and their little boy but they're still in the hospital here in serious condition--and he had five other dwelling houses he rented. He's not going to build his own, he's not going to build none of the renting houses. Well, now, them there old pile of wrecks laying there in your face, you never could get over it, could you? All moved away, you know, somebody else build a new home. We're really building up this town like that town over there builds up

and I can tell you why. Highway 67 cuts Judsonia off, you see. It runs from the north end of Judsonia. It comes right straight through to this little station you come by before you come here. It's not just not plausible for anybody to expect anyone to put much back there 'cause it's already off the highway, but as my son-in-law said, "What else can I do?"

I: You said a while back, you weren't going to worry. I just wondered—how do you mean?

R: Well, worry's not going to do you any good. Of course I worry more or less but the biggest worry will be me now. It's a-try to stay with Lilly so she can stand it herself but then I'm going to California and I don't know if I'll come back or not. They don't have storms out there but they have earthquakes but they don't scare me like this did. And I've got children out there.

I: Were any of your other relatives hurt?

R: Not bad. My youngest sister got a right smart cut. I think she said they took three stitches. But that's all. You know they was in the kitchen on the southeast side of their house and the windows begun to come in, doors—glasses—began to come in and into the little hallway. Well, it had blown down and—but they just kind of held together with the little girl in the middle, just kind of fell and rolled into the next bedroom, and down come all the ceiling—top went off—and the ceiling split and just come down on each side of them three there—and her husband was in the next bedroom—he went in there to change shoes, I don't know for why, she didn't say—and he got one shoe on and everything covered him right up. He's hard of hearing and he didn't really catch on like they did. Quick as they seen they could speak, she said she tried to get up and did and said, "Joe, where are you?" He said, "Here I am." He had one shoe on and just jumped over that rubbish and stuff to them. That's the only lick any of them got.

I: Why do you suppose a thing like that would happen and some lose their lives?

R: I don't know—I just can't imagine—the most freaky things happen in tornadoes of anything in the world, I reckon, you can mention. Now there's never been—there's been one, that hasn't just been that things happen, you know—just things that you wouldn't imagine. For instance, like that little old clock sitting up on the chest of drawers, it went in the partition wall.

I: When did you find out that your other relatives—your sister—was hurt and her family?

R: Well, I didn't find that out until the next day. I knew about the sister that lived next door to me, of course—she wasn't hurt and didn't find out about my older sister and the younger one, either

the next day. I don't know, I just couldn't pick up courage to ask about nobody. Because they's all neighbors and friends.

I: Why couldn't you pick up—

R: Oh, I just didn't really want to know the worst. It seemed like....

I: Why wouldn't you?

R: I just felt that I had taken about all I could. I had all the grief I could stand for a while. There's an old gentleman that got killed that's been neighbors of ours for fifty years, I guess, along in there, ever since I married—a good old fellow. I didn't know that for over a week until someone just casually said it in here, you know, but I hadn't really asked about him. I just didn't want to know.

I: I wonder why it is. I suppose that—did you yourself see anyone else get hurt or anyone get hurt?

R: No, not a soul. When I got outside, my glasses were broken up. I couldn't see out of it, you know. Couldn't see anything.

I: How your house, your own house—how much damage was done on your own house?

R: It's no good at all for anything. The roofs just all blew off to pieces on the little old front room, but the bedroom, the roof's all gone off and it's wrecked so you wouldn't be able to build again.

I: How did you find out about it?

R: When they put me in the car, Andrew said, "Mom, your little house is still standing." I said, "Is it?" but had a huge glass—big as all that—in the front room, and it blew that into my divan. I'm just not going to let things like that worry me if I can get a little something out of it, all right. If somebody else can use it and make out, they can.

I: Did you see any people at all?

R: Yes, I saw several men trying to get the high line up off the pavements before someone got electrocuted. I didn't realize that it was everything—and I thought—"Why won't none of them come and help us?" 'Cause everybody had his job, see.

I: How did you feel when you wanted help and it didn't come?

R: I felt like they wasn't listening.

I: How did that make you feel?

R: Not too good; but after I understood it, well, they were probably saving

more lives than they would just coming over there. People running and screaming with that power line all on that pavement there. No telling how many could have been electrocuted.

I: You said that when you heard the ambulances, you couldn't see them, and you didn't want to--why didn't you want to?

R: Well, I didn't want to see anything. I was just about all out. Being afraid and being sick to boot was just about all I could take and Lilly kept saying, "Mother, try to brace up. Don't faint. Don't faint." I said, "I'm not going to."

I: Then they took you down--where did they take you to?

R: Down to Hawkins Hospital. But we stayed there about two hours. But there were so many more in such a condition worse than to me. So I said to Lilly, "If we can just run into any of the doctors that will give me something to settle my nerves--a stimulant or something--to settle my nerves in case I did go out. It seem like if I ever did get to a place where I could be still and get dry and warm I would just go out with it. He did some along with a bottle of medicine and gave shots for exposure and all.

I: Did you yourself see any people that seemed to lose their heads or go to pieces?

R: No. The only thing were those men pulling those wires, getting them off the highway so traffic would get through.

I: How did they seem?

R: Well, everybody going like mad, grabbing those cables and trying to drag them to the east side of the highway.

I: How about the people at the hospital. How did they seem?

R: Screaming, groaning, and moaning. You never heard anything like it--just a real bedlam, that's all.

I: And how were the other people?

R: The nurses were swell. They run just as hard as they could. Along came a man and raised the sheet and said, "Are you hurt bad?" I said "No. Go help someone that is hurt worse than me. I just want some medicine." He went on. I saw them giving one or two artificial respiration--they were dying.

I: Right then? What thoughts did you have then?

R: Well, I just thought I was very lucky.

I: Lucky in what way?

R: To be as well off as I was. I wasn't a physical wreck--beat up--and wouldn't be a cripple the rest of my life.

I: How could being lucky make you feel, do you remember?

R: Well, I was thankful I was able to get out without any injuries because it's all been my desire to never want to be a burden on my children. As long as I'm able to get up and do what's required of me--not to have to be waited on. I'm not used to that.

I: What sort of problems did the tornado raise for you?

R: Well, I don't know. I can live among my children. That's the only support I've got because I'm not able to work. --If there's anything fittin' to sell that my daughter don't need--if some of her stuff is battered up worse than mine and she wants mine, she can have it. But outside of that I don't. I'm going to let them have my icebox because their's and my icebox sitting blowed up into a thousand pieces. I don't know what I'm going to do about the washer. She's not able to use the rub board and I'm not either. We haven't had to do without a washing machine. If we could have the washing machine replaced.... She can have my icebox.

I: What sort of problems did the tornado raise for the town as a whole?

R: Well, I can't answer that. I just wouldn't know how to say it. It's bad, though, because there's so many of them--I would say two-thirds--were just working people, depending upon little weekly wages and all--you know how that goes--then the month is up--well, grocery is on credit 'till they get paid the next time. What will they do is what I'm wondering. Of course, there's lot of Red Cross money being sent in through the district, but I just wonder--people with little old children that didn't have enough to eat in the first place. I just wonder what are they gonna do? But I guess they'll be provided for in some way. I've never known a thing about the Red Cross, Salvation Army workers, never had an occasion to need them. My son-in-law said last night some man helped him while he was trying to build his house back yesterday, "At lunch time I said, 'Well, I'll go out and get some canned meats to make some sandwiches. He said, 'No, let's go eat on the Red Cross.' I said, 'No, that's for people that needs it worse than we do.'" But there were people here in town who have millions, I should say, thousands, who ate every meal on the Red Cross, but they had everything swept away. There were others who hadn't lost anything in the storm and had everything to do with, but they just didn't want to cook, that's all!

I: Why is it some people will and some won't?

R: Oh, in all communities there's some--my father used to call it--I just couldn't answer that. I used to tell my children when they would go to a wiener roast or something that they shouldn't grab to get things over--if they didn't get any--just don't say anything. Sometimes they

would come home and say that they didn't get one wiener--but that if they had to make a hog of themselves to get one like others did--they didn't care.

I: Well, do you think everything possible was done that could have been done for all?

R: I think so--everybody says it was wonderful. They have here in Searcy offered beds or bedrooms for us to come and sleep and one lady was sent a big bird, a nice fryer, over here yesterday and said, "Is there anybody over there that can dress that chicken?" My daughter-in-law says, "Yes, we can dress it." We just don't think anything about jerkin' the hide off no chicken, but we don't want to do things like that--there are still a few canned goods in the store there, and he did have a little insurance--but not enough to build back, of course.

I: These people that have so much that come down and eat--what kind of people are they?

R: I haven't seen this but I've heard it, and I know it to be true because my sister's daughter went down there to talk the principal of the high school--she teaches there--about making out the reports--of course the school had to close--and the principal was down there helping them cook. He was helping to feed them as they come and she told me that a man and his wife and his wife's mother sat down there and ate like mad, and they have things at home, stoves and everything to cook with. He'd just sold a hardware business for a big price, run a big cotton gin, etc. so I know they wasn't broke. Just he and his wife, I just don't know. I believe they feel they doing what they shouldn't. They probably say, "That's what it's for. Why not get the benefit of it?" But we all feel different. If the time comes when I have to take charity, I will, but it's gonna be a have-to case.

I: Why do you feel that way?

R: Well, I was raised with plenty in coming up. My father was a good man and made good money. We all had pretty good stuff, you see, and never went in debt for nothing. That was one of his policies--debt runs into poverty.

I: You don't think any more could have been done?

R: No, I don't think so from what I've heard. You see, I've not been over there and I haven't seen any of them. But I've heard said, I don't see how but they done the very best they could. They dug their stock and stuff out of that store was covered completely up with a broken arm, two or three bones and neck broken. As I said, a lady and her grown daughter and little boy from out in the country come in with the berry plants. They had a cold drink--they was resting and getting a cold drink--and that caved in and covered their grown daughter up. I guess everything in the world was done in as little time as could possibly been to.

I: What else did you see of relief activities, other than when you went there?

You said you were at the hospital for some treatment--was there anything else that you saw that was being done?

R: No, nothing. Just the running from one to the other, seeing which needed the worse and doing what they could, some a-giving shots and some putting on bandages and some being rolled into the operating room. That's what just all that I saw--just what I seen laying there right flat on my back on the stretcher 'cause they didn't take me off my stretcher and wasn't no place to put me only on the floor and I didn't want to be moved. They rolled me in here to the door there and put me on the bed. Of course, I get right back up as soon as they left to get off that wet gown and get that grit and stuff off me and get warmed up.

I: As you see it, why did it cause as much damage as it did?

R: Well, you just happen to be in the strip or thick of the tornado, that is all. It could have gone a quarter of a mile north, I'd say 200 yards north of us and it just went across and tore down some trees maybe in the cemetery and went right down the creek but it didn't you see, it just hit there and just went right down Main street and sucked in there right between them buildings, looked like.

I: Why do you suppose that some houses were so hard hit, and other hardly damaged?

R: I guess that is a mystery to all of us. I know my son-in-law had a wonderful house and the little old two-room thing that I lived in was just slapped up, you know, but now it was, oh, I'd say four feet, maybe five, between my door step and my daughter's door step, my north steps and her south steps, and then just about the same distance between my house and the shop, I just stuck in there and I said many times,"I'm afraid to be in this little ole light house, if it ever come a strong wind, it'd just sucked through there like a hallway and there wouldn't be a piece of this little old thing left," but there it was, both of them sucked away on both sides and of course the back part of it was crushed but the ceiling hasn't fallen in. But the gable end is all out on the west end, almost joined to that house, so there you are...so many freak things that happen. I just couldn't explain it.

I: When did you find out that the storm was as big as it was?

R: Oh, Lord, not for Saturday night, I was just so, you know, so shocked and grieved about the child, I never dreamed about the whole downtown, we was in the very north end, right there in front of the high school and that high school building, swept off like that. I saw that much when they was puttin' me in the ambulance, just slicked off like a floor, you know.

I: When did you find out that other towns had been hit?

R: I guess it was Saturday morning. First thing. We began to hear that over the radio.

I: What did you find out?

R: A little town they call Boldingville between Bald Knob and us, about two and half miles—a few other places, skating rink and things like that. Seem just like it went right up that highway and there was places on each side of the highway and it just went through all western edge of Bald Knob like...all it damaged—the school building some, and a few houses, old shacks up there that tored down and there was a few people killed up there, I don't know, I read several names from Bald Knob, but I don't know them. You know, I don't remember them.

I: How did you find that out?

R: Over the radio. Part of it by paper and some, what someone come and tell, you know the only things I hadn't read in the paper.

I: How did you feel when you found out about this?

R: Oh, Lord, I just can't say, just so much worse than I thought. That I just say, we are better off than a lot of them, even if we did lose Billy because they just lots of them left without, a mother or a home or anything else. And that has always been the pitiful thing to us of anything, to be left without a mother.

I: Why is that the most pitiful?

R: Well, I tell you the way we feel about it. We have seen so many of it, just adrug around and half clothed and half kept clean, half sent to school and...

I: Why is that so pitiful?

R: Well, that is just not human. I'm telling right here, everybody can do better if—I was left with a bunch of little children and couldn't do any better than I have seen, I would deliberately take them to the home. I think they have a better chance and what is promise for a child if you don't give them a chance, that is the way I look at it. Chance for an education and to be grew up right, honest and honorable.

I: Did you see any children at all during the storm—did you come in contact with any children?

R: No, not a one.

I: Oh, in the hospital, were you in contact with any children?

R: Not any more than we'd heard their screams, you know. I didn't really see any of them. Come two or three babies, wrapped up in a blanket and carried into the nurses but I really didn't see the babies. They was wrapped up.

I: After the storm, did you have any trouble with your health? Any illness of any kind? Did you feel sick in any way?

R: Well, I was sick at my stomach. For a while.

I: Yeah, you told me. That, and any other way?

R: No, I guess not. I don't guess I was any sicker than I was before the storm. Far as that is concerned, I just been kinda out...

I: Were you sick at your stomach before the storm? Oh, that was after.

R: After.

I: When did you first notice that, then?

R: After I got in the car and after.

I: Oh, that was before—is it still bothering you at all?

R: No. No, it doesn't bother me.

I: When did it stop?

R: Oh, maybe the next day. I got warmed up—I been so nervous.

I: Oh, I see.

R: And a little nourishment.

I: Have you had any other trouble with your health since the storm?

R: No.

I: Like any nausea, vomiting, headaches, nervousness, loss of appetite?

R: Oh, yes, I'm nervous, I was nervous, but not now so bad.

I: Had any trouble with your bowels or anything? Pains in your heart?

R: No.

I: Any dreams or nightmares?

R: No, I haven't had any nightmares or anything like that. I don't sleep enough to really get started to dream—I do sleep little naps and then wake.

I: Did you find it harder to keep your mind on things after the storm? Have you?

R: Yes, sir, be to go to tell anything, I can't think half the time.

I: Why is that do you think?

R: Well, I think it is because my mind is so full of so many other things.

I: Yes.

R: Just think of names, when I try to, like I try to do that--Crawford that was in the store--I know the child all his life and just as I say, it just seem like my brain befuddles me. Can't think quick like I should.

I: Were there any ones that did hold a level head? Think and went ahead and did things?

R: I believe there was.

I: Who, for instance?

R: That daughter of mine, she never complainted, she never cried, she never done anything but she got me where she could start me, she said, "Mother, get in there. I've done all I can for Billy and now we are going to try to do something for you." And she never flinched a time. And the next morning, the daughter came over from Barnett, a neighbor of hers came with her. And they was as good as any two trained nurses. They just come in here and take and went and cooked and got me to eat, trying to take it easy, taking care of her and all, and my daughter stayed 'til last Saturday, and I telling you that has been a life saver 'cause she is a real good cook, good nurse and all over, you know.

I: Yes.

R: And she just as level headed--she got scared and nervous like I do, but you don't know, 'til it is all over, you know.

I: When it is all over, how do you know it?

R: I tell you, I could have died, or you got better, but her got scared to death. I said you never let on with it and--"you are not supposed to--"

I: Why were they better, for instance, your daughter--what do you suppose what makes them...better?

R: I don't know what it was, just because it is mine, it is just their way of doing and it was easy for them to do for me.

I: Well, now some people--she did--you say she doesn't lose her head? --or she does things and that afterwards...

R: That is right.

I: Why is that, do you think?

R: I just don't know.

I: That she is able to do that? I mean, how—why—is—

R: Well, I don't know why she is able but I just couldn't answer that at all.

I: Which ones turned out to be the best leaders during the storm? Do you know?

R: No, I don't know, about that, 'cause I'm not been over there. I just don't—who did the bossing or the work or anything about it.

I: Do you know—you said your son-in-law asked you if you could walk and you said, "No." And he just picked you up and carried you and you wondered how he ever did it?

R: That is right.

I: Without stumbling—why did you think that he might have stumbled?

R: I knew he bound to be unnerved when he just went around to his baby and he was dead, and he was just as wet as he could be, all that rubbish was piled up over, I don't know how high, he just tramped through, fell through with one foot and then the other and you just take a woman with two heavy blankets around her, that is quite a load. I just thought he wasn't able to do it 'cause he's not a very strong man.

I: But he did it?

R: He did it. He said, "Oh, Grandma, I'm not going to let you fall," and just talked like that there hadn't a thing happened.

I: And then he put you—?

R: In the car.

I: And then what did he do?

R: He ran back to get the little boy. Laid him out in the store building there. You see the ceiling didn't fall in on the store building and that was a little protection.

I: And then what did he do?

R: In the meantime he was getting the little boy. My daughter, she was dripping wet, and her hair, and she was freezing, and she said, "Mama, I'm going to see if I can find a dry dress to put on," and she ran back in her closet and found her a dress back in there, you know, that was dry, and got her old coat on, long coat, and jerked that wet one off and put her dress on without another skirt or drawers or anything—she couldn't find no drawers, they had blown away, they wasn't in the bathroom, and she grabbed for something and she got a pair of her husband's

pajamas bottoms and she deliberately put them on. Then she put her coat on and buttoned it up tight. Then she couldn't find no head wrap, but she grabbed for something and it was a big white cloth she had had spread over coats and things when she hanged them up, so she just tied that over her head and that is what she had on when she got here. When she did that, though, right out there where I was, I said, "Honey, if you got any sense, you must run and get you on some dry clothes—I find you a pair of britches and some heavy underwear. Of course he didn't put with them, he won't wear them, he don't like them, but he felt he take any kind right then. So he ran in there, in the back room, the back closet didn't completely tear up—had a partition wall—and he grabbed a shirt and britches and underwear and jerked them on and come on out there and by that time the ambulance had backed up for to take us so he said, "Well, I'll stay here with Bill 'til the ambulance comes or whatever comes," and didn't say any more, you know. Then I got in the old car and come on over. But we was over here at the house an hour and half before we ever got here.

I: What kind of person is he?

R: What do you mean?

I: Well, oh, just what kind of a person?

R: Build, or in disposition?

I: Yes, well, build, too?

R: He is tall and slender, hollowed cheeks, poor, and one of the best things you ever saw. I went and turned on my heels and do anything for him, my own boys—I couldn't do more for them, now that is saying a lot, isn't it?

I: It certainly is.

R: And—

I: Best in what way?

R: Well, he is just as religious as he knows how to be. He tries to live right, tries to treat everybody right, he likes to be treated right. All the time my baby boy was in the army we lived in part of a big apartment house over there and they lived in the rest of it. He always seen to it, we was seen after, you know. Wasn't any of the other children around, some in California, some one place and another, and she was the only one over here left and they always come over here. He has always seen after us. He's just a good man, that's all. He has had a hard time. His mother was killed in a tornado, right out north of town there.

I: She was?

R: She was, when he was twelve years old--like his little boy--that is the story of that. Oh, I forgot how long ago that has been, but--.

I: How has he seemed since the storm?

R: The same--he just takes it, you know, and tries to, oh, long as I stayed in the bed, he come in over there where I was, he come in and sit down on the bed chair by me a little bit, tell me things, what he had heard about how Doc. James was, and his wife or something like that, and of course about Billy, and we'd both have a good cry, then he'd get up and go wash and clean up and get ready for his supper but since I've been up and all we just all sit and talk together. I think it is better for him, and well as it is for me. Then I'd get all riled up again. No, Andrew is a good boy, everybody things lots of him.

I: Do you find it harder to do your regular work or the work that you did then you did?

R: I not been able to do anything...no, I'm a-feeling better the last day or two--I try to take it a little easy, but I dried the dishes in the morning and last night--don't make beds or sweep or anything like that yet.

I: Do you still think about the storm?

R: Oh, Lord, that is all I do think about, unless I'm talking to somebody about something else.

I: What comes to your mind?

R: I can just see that wall coming apart and them windows coming in, every time I shut my eyes.

I: Do you talk about it much?

R: No, I won't if I can help it. I even got up and went from one room to the others to keep from hearing them talk about it. Last night they got to talking about Billy and about the storm, something, after supper there, and I told my youngest daughter, she and her husband gone over in Bald Knob, and his father's farm, said I just had the creeps, and...

I: You had the what?

R: The creeps. My hands just got so cold, just got so nervous. I just wanted them to hush, I just felt like screaming--don't ever mention that storm again--that's the way I felt.

I: Yeah.

R: That is the reason I didn't sleep any, I think, I just got my nerves all up.

I: Oh, yeah.

R: That --before I went to bed.

I: What was the worst thing about the storm for you?

R: When I realized that Billy was killed. There wasn't anything else mattered and it still doesn't, if we could have just saved him.

I: When did you first begin to feel that the worst was over?

R: Well, I didn't realize--I don't know,--I just was so near out that I didn't realize anything much and I raised up on the bed and hollering for help--to get me out of the rain and to find Billy.

I: Do you feel that you were changed in any way because of this?

R: No, nothing I know of, can't--I have always tried to live as near to the Lord as I knowed how, and I doing the best I could and I just don't know--it is just hard for me to understand why things have to happen, like that sometimes...but they do, you read, you fin why...?

I: Do you feel you have changed any of your ideas?

R: Well, I just got an idea that I might...

I: Do what?

R: An idea--I don't want to live over there any more and see all that--rail and rumble--everybody was a-tearing down and rebuilding, you know. One of our neighbors came back in, well, okay, well and good, I'd say you can take it, I can too, but I'd rather be there as any place in the world, it has been home to me--I've been belonged to Judsonia, whether I lived in the country or not, since I was a child. All my life, I know those people there and of course it feels like home to me.

I: Do you think there is anything you would do different as a result of this storm?

R: If I had my way, yes...

I: What would you do different?

R: If I lived there I'd build me a concrete cellar and every time it looked like it half-way gonna storm, I'd get in it. But I don't want to get in some old pole pen and get bit by a rattle snake.

I: No, I wouldn't think so either...Do you feel your town has changed any way?

R: Well, I couldn't say, I haven't been back there yet. It will be a radical change...

I: In what way?

R: Well, just be so few people compared to what there was, and so few business places because knowing, that is, hearing so many of them not going to be there, it will just be like a broad place in the road, the saying is, and then the neighbors, that have been neighbors for at least forty year and fifty like, they will scatter out to other states. Well, you know, it couldn't be the same. It will never seem the same to older people who has lived there a long time..Would you think it would?

I: How will the community life be changed in the future, do you think?

R: I just really wonder about that. We had a wonderful school there and one of my nieces teaches there, said the professors said, from what he had learned, had heard about many leaving out and wasn't going to live there any more, but that there would be, short at least a hundred and fifty pupils by the time school opened again. This next year, if you know, if they didn't change back and change their mind and come back there.

I: Oh, yeah...

R: And, oh, goodness, if you knew the amount of them, not going to be back and any amount of them would like to, but can't, I think.

I: Why do you suppose they can't?

R: Well, I don't know, They couldn't very well get help from the Red Cross, maybe.

I: Oh, financially. Have you gotten to know people better since the tornado, do you think?

R: Well, I don't know, I don't know about that. I been over here ever since it happened, I already knew what people what has been in here and the only ones I got acquainted with was when my husband, when my son's wife lasted so long before she died. They are wonderful people. I can tell you Searcy is a wonderful little town.

I: In what way?

R: Oh, so congenial and willing to help--just run in and visit, and just everything they have got is at your disposal if you wanted to use it.

I: That is wonderful...

R: Now that is wonderful--neighbors like that...

I: Surely is.

R: And they really are good here—my daughter-in-law really has some wonderful friends here in this town.

I: Do you think you have learned anything that would be helpful to you or to others in case of another disaster? Like this...

R: Yep.

I: What?

R: Don't get in the corner of a building next to where the wind is coming from...if we had been in our own hallway over the furnace or in the bathroom there wouldn't have been a hair knocked off us. But we didn't, you see, and that is what did happen, but always get near the center of the building as you can, you know?

I: Yes.

R: 'Cause it generally taken the main part out and throws it this way. Well, if the wall caved in a little, you'd be in the center, well, you are not apt to get much of it...or you might get killed, but you stand a better bet than that, that is the only room that was just, every vestige of it, torn off plumb to the floor.

I: Was there anything else that you think of that you have learned? That would be helpful?

R: I don't know if we had any inclination, if she would have told me, "Mother, I believe there is coming a cyclone..." I'd suggested we grab a blanket or a quilt, roll up in it and lay flat down in the hallway or bathroom, away from that room there after it begin to buck up there—I could feel the windows trying to come down on us, but she didn't, she didn't think it would blow us down of course. Oh, there is lots of them building storm cellars and I don't blame nobody over there, they tell me.

Appendix A-7

The respondent is a married man 28 years of age who lives with his wife and daughter in Searcy. He is a laundry truck driver and was on his way back to Searcy when the storm was striking, and the lights went out when he arrived at his home. After it stopped raining he went to "downtown" Searcy where he heard that the tornado had "blown Judsonia away."

He took people who were concerned about relatives to Judsonia in his laundry truck and brought back people who were homeless. He learned much later that a second and third cousin had been killed and a first cousin had been injured seriously. None of his immediate family was in danger. He worked overtime in the laundry and cleaning plant which was giving free services to the victims of the disaster.

Case 7-1

I: What we want to know is everything that you know about the storm.

R: Well, a big muddy cloud is about all I can make out of it. A lot of thunder and lightning. I really didn't think there was much storm to it. There was quite a bit of wind around here but I didn't pay any attention to that. The lights went out around 5:30, I think. I came in—I was out of town and came on in as soon as it started lightning quite a bit. I went home and it didn't last over thirty minutes—I mean the biggest part of the storm; so I went uptown after it quit raining—it wasn't quite dark yet—and heard that Judsonia was blowed away. I went over to investigate that and there was quite a bit of damage. I made two trips back and forth hauling people back. But though I actually knew there was a storm going on, I didn't quite realize here that there was a storm. There wasn't any damage except our television had gone off.

I: Well, can you tell me a little bit—what this storm looked like?

R: It just looked like a muddy river. The clouds were real yellowish looking. They just looked like muddy water and an awful lot of lightning. Well, I'd never seen clouds like them but I still didn't give a thought about a tornado. I never paid too much attention to it. I'm not very much skeered of clouds. My wife got scared when I got in; outside of that I didn't give it too much thought 'til it was all over.

I: Well, who told you that there had been a tornado?

R: Bill—somebody. I don't believe I remember his last name, but he said he heard that Kensett had blowed away first and his dad lived there; he wanted to go over and see about it and I took him over. Kensett wasn't hurt very bad, but then we heard Judsonia had blowed away. So we went over to Judsonia. We heard that Bald Knob had blowed away, also. I brought a load back from Judsonia and Bald Knob. It wasn't hurt near as bad as Judsonia, but there was quite a bit of damage there, too. I worked until about 10:30 that night, I guess. Came back—just about all the wounded that they could find in the dark. I didn't have a light of any kind, any flashlight.

I: After the storm stopped you went into the city?

R: Judsonia again. It rained pretty hard after that. It rained just about all night. It was terrible bad again. You couldn't hardly get in there at all. So many wires, and holes, and trees and stuff across the road. It's about seven miles from here to Judsonia but it took you an hour and a half to there and back. I don't know how the ambulances ever got them out of there as fast as they did—so many going over to see about it. Actually you couldn't see anything. It was too dark. About the only way they found the people that was wounded was you could just hear them holler and the most shocking thing I believe I ever saw. It was worse than any time I ever saw a bomb. You've seen movies of towns that were stricken. It coulda done just as good a job.

"I." stands for the remarks of the Interviewer.
"R." stands for the remarks of the Respondent.

I: I'm still a little confused about—where were you when you had heard there had been a tornado?

R: Uptown—Searcy—I'd gone out. Gone to see about my truck I had in the garage and there wasn't any lights anywhere. I stopped in the poolhall and they was all bunched around in there standing around talking. They'd heard Judsonia had blowed away and we heard an ambulance come through just a few minutes before that. I understood that there was a wreck out on the highway. So we thought we'd drive out and see about the wreck on the way to Kensett. And there had been a bad storm about 2½ or maybe 3 miles out of town. It just barely missed Searcy. About all we had was hearsay. It didn't take us very long to find out. It had come so close to hitting us. Just a little too close.

I: Who were you with when you heard about the tornado?

R: I believe Bob Paulson—but I'm not sure—I don't remember particularly—I'm not sure. There was just a gang standing around there. I don't remember particularly who all was down there.

I: How did you feel when you heard that there had been a tornado?

R: Well, I just couldn't hardly realize that there'd been too much damage. They claimed that there was a few people killed. I had a few cousins that lived around Judsonia, so I thought I'd drive over and see. After I saw the damage, I figured everybody in Judsonia was killed then. Don't seem possible that as many got out of it alive as there were. I never been close to a tornado before and just didn't have too much of a feeling for it. I thought it was just another storm.

I: What did you do right after you were told that there was a tornado?

R: This boy wanted to go over and see it. And this boy spoke up and said he had a daddy that lived in Kensett and he'd like to go over and see him, so I took him over.

I: And then?

R: Well, that's when we went on to Judsonia and we went down in town where most of the serious damage was. One family had their home blowed away and I brought them back—there wasn't any of them hurt. I believe there was eight of them in the house and it was completely destroyed. They had a little baby and all of them were just wringing wet and no clothes. I brought them over here to their brother. I was about to run out of gas and I got some gas in an emergency. By the time that I got back to Bald Knob they just about had everybody cleared out. There was so many cars and so much talking going on, you couldn't straighten anything out.

I: What was the talking about?

R: Damage, and who all was hurt and who all was killed. Everybody was being sorry for one another, and doing no good, either. Things like that get

people so excited they don't know hardly what to do.

I: Well, did you have any idea before that that there was going to be a tornado?

R: No, my wife told me when I left—I left around 3 o'clock in the afternoon—I guess—she said it start thundering and lightning and it looked like it was gonna storm. Well, they'd gotten a lotta thunderclouds and I never did pay any attention to them. But it just seemed like it was a little bit worse, so I came on back. The wind was blowing pretty hard. Well, that was the hardest—I came in about 20 minutes to five and it was blowing at its hardest then.

I: Did your wife think it would be a tornado or did she think it would be just a storm?

R: She thought it was just a hard wind. Didn't either one of us dream it was a tornado, though. This close by, anyway. She evidently thought it was just a storm somewhere.

I: Were any of your family hurt at all?

R: I had two cousins get killed. Distant cousins. Second and third. And a first who was seriously hurt but I believe he's gonna live.

I: Well, when did you find out about that?

R: It was the next day. I tried to find them that night. Couldn't get to their house. It was so dark you couldn't hardly hold a light to find anything. The streets were all full of bricks and trees, and stuff like that. I was afraid to get out there in the dark. So many nails and stuff and so I wait until the next day, soon as I heard somebody found them. All they had was emergency lights to get through. I went to the hospital the next morning to see if I could find out from those boys about them. One of them was hurt. And then probably it was the second day before I found out any of them were killed. Had several cousins that lived around Judsonia.

I: Did you have any friends that were hurt by the tornado?

R: Knew of several people. Offhand I can't think of their last names. Worked with them three or four years ago, but I forget names pretty easy.

I: Were they close friends?

R: No, not to speak of.

I: Well, did you see anyone who was hurt, yourself?

R: After they were brought in I did. I didn't pick up anyone at all. I

came back by the National Guard Armory building and I saw several there. A lot of them in awful bad shape.

I: Were you in the building then?

R: I came in at 10:15, I believe. The ambulances had blown up quite a bit. They wasn't bringing any of them in at that time. I saw several of them the next day.

I: How'd you feel when you saw these people?

R: Of course, naturally, you can't keep from feeling sorry for them and a lot of them laying there didn't know where their family was. Even some of the families that was in the same house, the storm separated. It was two days before some of them found out what had happened to them. Speaking of folks' friends, I do remember one that I've known all my life. He and his wife both got killed and they had a little baby—I believe it was around a year or year and a half old—and another three or four years old—the storm killed both of them, but both kids are alive.

I: What were the people in Judsonia and Bald Knob doing when you went through?

R: Wanting to know where their folks was. Folks that were hurt seriously were hollering for help, wanting to get out. Several were dead. Naturally all of them were just scared to death. Some of them that weren't hurt very bad missed part of their family and was screaming and wanting to know where they was and if anybody had saw them. Everybody was asking one another if they'd seen so-and-so. There was an awful lot of rumors got out that a lot of people got killed that wasn't. Naturally, when they was missing they thought they was dead.

I: Did you see any kids there?

R: No, I didn't see a one. Oh, you mean in the building—that were wounded? After I got back, or in Judsonia?

I: Either place.

R: Yeah, I saw a few little kids in the armory building. They'd already had first aid.

I: How were they acting?

R: Well, I saw one that was crying. They didn't know how bad they was hurt. 'Course, the parents were more worried than the doctors. They was scared to death about the kids. However, I believe if they'da been hurt very much, if they wasn't unconscious, they'da been crying. And all I saw there wasn't but three or four and all that I saw was just laying there taking it easy, like they was tired. I don't believe they was even scared too much. I did see one that was laughing.

I: How about your own little daughter? How did she feel about the thunder and lightning?

R: It doesn't bother her as long as my wife doesn't act up. Whenever she sees that anybody else is scared, then it makes her scared.

I: When you were in all these places, did you see anybody that seemed to lose his head, or...?

R: No, I don't believe I seen a one. Since the storm I've seen a few. There were several that realized what had happened and then lost their heads due to the severe shock. Seemed like it didn't last too long at the time. Maybe just a few seconds. Some of them goes into it so bad you can't stop them. Not very many of them, though. They sent most of the serious cases to Little Rock, I believe, and Memphis, Tennessee.

I: Why do you think some people lost their heads and others didn't, with about the same damage done?

R: Well, some people has better control than others have. I wouldn't know how to word it out. Some people can take more than others. I don't know how I'd feel but I believe I'd figure it was just one of those things. Nothing you could do about it. Some people just seem like they live with it, and they're just hard to handle. I believe that those that goes all to pieces that way are a little weak-minded. It's only natural that it would hurt anybody who lost everything, even though they didn't get wounded.

I: Did you see or hear of anything going wrong in these towns?

R: Nothing--only people investigating that wasn't trying to help that shouldn't even be there. I, myself, didn't even know they needed any help when I was going in. We was just going over, just checking. We'd heard that there was a lot of wind out there and we were going to see. And that was everybody else's idea. I figure 50% of the people in Searcy went over for that reason, when they should have been home. Of course, they couldn't put out an alarm. The radio station was out of commission, we didn't have any electricity, couldn't call anybody and the National Guard was out our way blocking the highway. 'Course they never got the highway blocked until all the victims were out. But a lot of people went in like I did and seen what they needed and started hauling out trucks, cars, and everything else.

I: Did you hear later of any stealing going on, or anything like that?

R: I heard somebody say the cash register was stolen out of a cafe. I believe it was the bus station over there. Who said it, I don't remember. Just heard it. Although there was a lot of people over there the next day that owned that property that was around and they had a lot of National Guards and the state troopers in there guarding it--people that had valuable stuff in their home were found all over the place. I don't imagine it was all turned in. 'Course, you don't know. That's just my opinion.

I: What kind of people do you think would do things like that?

R: I don't know about that. People that didn't have much feeling for people that's hurt. They'd be dirty—anybody that done anything like that. Especially after they'd lost everything, but you'll find them in every crowd. I don't care how bad anybody's hurt why there'd be somebody'd steal off of them.

I: Have there been many outsiders in town?

R: You mean to investigate the area?

I: Well, for any reason.

R: Well, there was an awful lot of people from out of state. Even as far as California and New York, stuff like that. They all tried to get through. Of course, they started blocking the highways at the state line, telling people not to go in that area, that they were trying to clean it up. It's surprising how many there were. An awful lot of them. Offhand I'd say there must have been two thousand people that lived way off from here. And I think the people just run the telephone operators crazy trying to get calls through. Some of the people come on through, anyhow. The state trooper told them not to. They said they was gonna come in here, that they had close relatives. But they just had to know something. They let a few of them through. And we still have people here right now.

I: What about any other people?

R: Just curious onlookers? We had a lot of those. The next day I drove back through, warning people not to go through there. And you wasn't allowed any time without a pass. I went and got a pass. 'Course, I was just curious to look. I shouldn't have gone in. I got a pass and went in. They were trying to get things picked up so you could drive through but there was so many people over there you couldn't hardly do anything. And it was really dangerous to be around, 'cause you might get hit. There are pieces of buildings still hanging up, you know, that are falling. Every time that stuff falls, it would really be dangerous. I believe there was one worker that was killed while he was cleaning up, too. They were tearing down a frame that was almost tore down, and when that man got to hammering, he was killed. I don't know where all the heavy equipment came from, but they moved it right in yet. I'd say there was people from all over the state that come in. It seems to be the worst storm we've had in ages. I guess it's our worst in Arkansas.

I: Did you all have enough of everything after the tornado?

R: What do you mean?

I: Food, water, clothing.

R: On Sunday...on Saturday, I think it was, we had electricity but they told

the townspeople not to use it because they only had one line through and they wouldn't have enough to bring in town. They had to shut one man down. He was gonna run anyhow. I believe it was a Bird'seye plant here. I went down and turned him off.

I: How did the people feel about this one man wanting to run anyway?

R: Well, they thought he was...it was kinda dirty of him. After all, the hospital did need the light. He's not an Arkansas man, anyhow.

I: Well, did he have a plant—was that it? Or a home?

R: A plant. He was renting a building and he was canning spinach, I believe. They can strawberries and just about anything you want to mention. It's a big outfit. They set out spinach seed, then can spinach; then they set out strawberry seed, and can strawberries. That's the only two things they can.

I: What about your telephone? How long was that out?

R: I really don't know. I didn't try to make any telephone calls. They'd just bring news to me here. I believe it was three or four days, though. You wasn't allowed to put in no long distance call, though, unless it was an emergency. If you could prove to them it was an emergency, why you'd get your call through. And I don't remember trying to call myself for three or four days. Business firms who had phone service had it on Monday after the storm. At our business, you see, we have calls every fifteen minutes all day long and we couldn't get ours fixed. Now whether they had local calls for stores and them, I don't know.

I: Well, was this not having electricity or phone much of a problem for you?

R: Not having any lights wasn't. We had lights here Sunday night, I believe, but they was still telling people not to use it. Everybody else had them on but we went down and bought some candles. We didn't sit up pretty late anyhow, so we didn't need any electricity at all.

I: Did this bother you very much?

R: No. I didn't have anything in particular to look at anyhow.

I: What about your refrigerator?

R: Well, fortunately, we didn't have anything in there that would spoil. 'Course it was off...I believe it was off about two days. It just so happened we didn't have anything in there...we didn't have anything froze. Milk was 'bout the only thing we had in it—was boiled—and we consumed that fast enough.

I: What sort of problems has the tornado raised for you, any at all?

R: No, I don't believe it's caused me any at all, except this. I feel sorry

for the people. Of course, the first week, there was an awful lot of traffic in town, but that's about the only way it bothered me. Around there on Main Street we still have the Salvation Army there and the Red Cross and they take up quite a bit of parking space.

I: What about the town as a whole? Do you think they had any problems?

R: I don't think so. In a way it's helped the businessmen, because they have done their trading here. But Bald Knob's business district was hurt pretty bad, too, and most all the trading's done in Searcy. They did have three Red Cross buildings here where they threw their clothes, bed clothing, etc. And they was just...people in town all day. The cafe, they're making big money out of that. I say big money--they're filling their tables every meal. Whether they get any storm victims at that rate on their lunches, I don't know.

I: What else was done in Searcy to help the people who were hit by the tornado?

R: Nearly every man and his wife in town worked at the Red Cross building. Most everybody has donated clothes, money, or something. They had several ways of donating money here. Some people collected for it. The people of Searcy has done as much for its size as any town around here, or more, outside of Little Rock. They've done an awful lot down there, according to the papers.

I: Do you think that everything that could have been done was done for these people?

R: Well, there can always be a little more done. As far as naming a lot of it, I don't believe I could. I think their system is kinda poor, in a way. It seems like our Red Cross people are not doing what they ought to. My mother was in the hospital and there was a storm victim in the room with her. They visited her and asked her a few questions and said they was gonna do a whole lot that they're not gonna do. They're expecting the people of the town to take over the Red Cross and run it theirselves. Well, the people in town, they go down there and they don't have even nobody in charge. They even have a couple women all the time fighting down there--arguing who's in charge of the place. Some storm victims came in and they didn't have any system of going through and picking out what they needed and just let them roam all over the building and pick out what they needed. They took it. I've heard there was some people who've gone through who weren't even in the storm and they'd get clothes. I don't doubt it a bit.

I: Can you think of anything else that could have been done to help the people?

R: Well, offhand, I can't think of anything. There was a lot of ways they could have helped them more. As it is, they've got clothes laying up there that have never been used. But if the people that donated it would have done better to take it to people in the storm themselves. If they'd take it and give it to people, I believe they'd get more good out of it than they would by spending money for them, 'cause they know what they need more than the Red Cross. After all, the Red Cross is a good thing, but 'course any big organization costs plenty.

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I: Do you know of any of the problems that were handled particularly well?

R: No, I don't. Just here...well, I didn't talk to any of them long enough to pay too much attention to it. I was just in the room with them and all of it's a pretty big mess. The field kitchens are still here. There's a lotta people that's living out of that that has homes. It's just hearsay, now. I couldn't swear to anything like that. There's hoboes around here go in to get a meal off of them. 'Course that's the way they make a living anyway.

I: Can you think of anything else that wasn't handled too well?

R: No, I guess not.

I: Well, could you find out pretty much everything you wanted to know?

R: Yeah, I guess I did. I've heard everything in the books, I guess, just like everybody else has.

I: Were most of these stories true, do you think?

R: All of them had a little truth in them. 'Course, I believe there was a lot of it stretched. Every time it changes hands a little bit is added on.

I: What were some of the stories going around?

R: I don't know. That it's two tornadoes, I believe, from there this side of Judsonia. They claim they run in together--they did change courses out there--and then they went together then. That's how come we have such a wide stretch. I don't know who thought the idea up, but it's a little wider from the river on in to Judsonia. Some of them say it's over a quarter of a mile wide. Some say it's a mile wide. 'Course, I don't believe it's a mile wide. I didn't step it off or anything like that. But I heard one man say it was actually a mile wide. But actually, I don't believe it was over a half or quarter at any place. It's only natural that there's gonna be something blowed down within a two-mile radius--it has such a suction to it. It's bound to do damage in that wide an area.

I: Did you believe most of the stories that were going around?

R: Yes. Didn't have any reason not to.

I: Did you hear any stories about how much damage was done by the storm?

R: Of course, I read a lot in the paper. The paper says...I don't remember what it said, but Judsonia, Bald Knob, and the whole state, $25,000,000, I think. I don't know whether that was for Judsonia or the whole state but I believe it said Judsonia and Bald Knob damage. White County damage was $25,000,000. 'Course, there's a lot of people don't know

how much damage they have got, even in town.

I: Have you any other stories about how the relief work was being handled?

R: Well, the radio station, as soon as they started operating—they started advertising for money. They said they were gonna hand their money out to the people individually. Well, they were doing fine. People liked that better than being handed out through the Red Cross or any other organization. In the first twenty-four hours they took in $2,000 just from right in town here. Then I heard later on they didn't care how much they got in full; but now they don't know what to do with the money. They haven't got any way of distributing the money. They don't know who all was in it. They don't know when they give somebody some money whether he was in the storm or not. They got all that money and it looks like they gonna have to give some of it to the Red Cross to distribute it after all, 'cause that'd be quite a problem for one man to take no more than that is and distribute it equally among the people.

I: Who is in charge of that?

R: I don't know for sure, but Mr. Jones and Mr. Smith own the station. I'm sure they thought of it or had a littl help on the side in think- of it. They had damage to the station theirselves. Now they might have already got rid of the money somewhere, but I just heard that they had been talking about not knowing what to do with it after they got it, and I believe they had that set up to take anything anybody wanted to donate at the station.

I: Well, as you see it, why do you think the storm caused so much damage?

R: That's a hard question to answer. It was just—I don't know. But I'd never been in a storm. I'd never seen a tornado—a lot of people say they saw this one but how it done so much damage, I can't see that or understand it myself. It's just one of those things. Mother Nature.

I: Have you any idea why some houses were hit so badly and others weren't?

R: Well, that's what's hard to understand about it. See, there was houses standing right in the path of it and it didn't do more than break a window out, where all around, everything else was ruined. There's no explanation for it, I don't believe. It's just too hard to...there's nobody can figure it out. It can clean out of the path just as straight as a string and two feet from it it'll leave everything standing. That's what I don't understand about it. Take more than me to explain it—a business like that.

I: While we're on the subject, did you hear any stories as to why it missed Searcy?

R: No, they said they couldn't see how it missed it, the way it traveled through Judsonia and Bald Knob. You see, the course it took from Judsonia

to Bald Knob, while we're out of line with it. It started out southwest of us and that's just about a mile or maybe a mile and a half, and it got to the river out here then changed courses and went almost due north. Then it went about a mile that way, then it changed and went northeast, then. It zig-zagged. It didn't go in one straight course. Then from Judsonia on it traveled about ten or fifteen miles east of Bald Knob. Then it went back southeast and whether that was the one that went into Tennessee, I don't know. Later on that night, they had one in Tennessee.

I: About when did you find out the tornado was as big as it was?

R: About thirty minutes after it was over, maybe an hour.

I: How did you find out?

R: I drove over to see—in Judsonia—I could see the damage that was done. Awful big one, 'cause it just didn't leave anything standing, hardly. I really didn't realize how big it was 'til the next day. Couldn't see any of the residential district. The city was completely gone. I figured it took a path through the business section. When I went to Judsonia, there's not a building standing, except way on out. And it was a good quarter of a mile wide then.

I: Well, when did you find out that all the other towns had been hit?

R: Bald Knob and Judsonia are the only towns I found out that night. Next day I found out McCall was completely destroyed. But it was a rumor. I don't believe it was hurt. There was a few houses damaged, but nothing to compare with what went around. I believe they had a little damage at Augusta, too, but it didn't hurt too much. Wasn't anybody killed. At Cotton Plant there were a few killed. I believe there was seven or eight killed there.

I: How did you feel when you saw that it was as big as it was?

R: Some said it was a tornado and some said it wasn't—it was awful close, over at the airport. It struck the airport and destroyed every plane in the hangar. And that's the only place it struck. It just quit there. Hit there and quit. There wasn't any buildings blowed down at all. It was about fifteen or twenty miles out of town. They had fifteen or twenty planes out there, I guess, and it destroyed every one of them. This strong wind just picked them up and they sailed through the air. People were driving along the road at the time it was happening that got hurt in the cars. The planes were going across the road. They said they knew there was a wind blowing pretty hard; and they had two hangars outside.

I: Did you have any idea what the tornado would be like?

R: I'd heard a lot of talk about it, just more or less, a large whirlwind. I've never seen one.

I: How'd you feel after the storm was over?

R: I was give out--tired and give out. Had to work long hours and setting up at night, too. I know my mother's been sick ever since in the hospital and I been setting up at night and I hardly had time to think about it much since then. I think it's about to die down, though. Everybody's quit talking about it, anyhow, except a few of those who lost folks. I imagine that's about the only thing they can think of.

I: Have you ever been through anything like this before?

R: No.

I: Anything similar? Like a fire, or flood, or any other kind of disaster?

R: No, I've never been in anything like that, fortunately.

I: In general, how would you say the people here in town acted?

R: I thought they all did fine. Everybody jumped in and helped. People took in people they didn't even know just so they'd have a place to sleep that night. They even took ones from the hospital that were able to leave 'cause they didn't have room for them at the hospital. Then the nurses come out there and treated them. I thought they done this about as well as they could, not knowing any more about it than they do.

I: Were there any sorts of people who did a particularly good job that you know of?

R: No, I haven't heard anything on that. They all done good work as far as that goes. I guess lots of people have had experience in nursing can just jump right in there and help the nurses because they were short. A lot of people volunteered and did a lot of work. I'd give one as much credit as I would another on anything like that.

I: Do you know of any sorts of people that didn't do as much as they could have?

R: Well, there's lots of people that done that. Several that didn't even do anything at all, I guess, as far as I know. I never heard either way. I know there's a lot of wealthy people in town that didn't want to find work. They don't believe in working. And there was a lot of people that had time but didn't donate any work.

I: Why do you suppose they didn't do so much as they should have?

R: I don't know. They don't have a heart for friends, or something. If they was ever be in a storm theirselves I guess they might wake up to the fact that they might need help sometime theirselves. It's not the idea of making anything of it, as it's helping somebody that needs it,

and just gotta have help. A lot of people don't think about that until it's too late.

I: Did anyone sort of take over particularly and sort of lead?

R: I don't know. I'm sure that somebody had to. The National Guard pretty well took care of all that. See, they were on duty here about ten or twelve days. And I believe they had the Red Cross...I'm not sure but I believe they did, and they've taken care of the guard system. 'Course, there was state police in there and they stayed a week. We didn't have but a very few Red Cross women in here for a while, but they've got several in here now. They're directing it, but the townspeople are doing the work.

I: Do you think they're doing a good job of directing?

R: Well, actually, I don't know what they're doing. They're doing an awful lot of paper work. I guess they ought to get something done.

I: Did you help with the relief work at all?

R: No, I didn't. Drove a truck. The only way I could help by working in the laundry and keep things going. I did work on Sunday without any extra pay for it. And I helped that night in bringing people back and finding places for them to stay. We donated clothes to them to the Red Cross. Well, I took some to some friends that I knew. They had a little baby that didn't have any milk or any bottles, or any clothes left. I took them some baby clothes, some baby bottles, and we didn't have a can of milk. That time of night the drug stores were all closed, and I went clear down and got the milk and took it to them.

I: Have you ever done any other kind of relief work before?

R: No, I haven't. I don't know whether I could have stood up under it, seeing those people all...before they were ever sent to the hospital. I never was much of a hand to face blood. I don't know how I'da acted if I'da seen anybody cut all to pieces. I never picked up any wounded at all. I would have if I could have gotten down there but they had everything blocked off and messed up—they didn't even know where anybody was at hardly.

I: Well, when things sort of calmed down, did you find it harder to do your regular work than usual?

R: No. It's more hard, is all. Just more work. Outside of that it's all right. We have a lot of strange people in town. We have a lot of clothes down there and we don't know who they go to. A lot of people brought them in and forgot to leave any name or anything like that and we still got them, and probably nobody will ever call for them. If they don't call for them within a reasonable length of time, we'll turn them over to the Red Cross. Most of the people that were cut up to amount to anything at all—they stripped their clothes off of them then put

pajamas or something on them. They piled them up and sent them in to the cleaners and charged it to the Red Cross, or something like that. The Baptist Church, I believe, sent in one big order of dry cleaning. Some nice clothes, too. Expensive clothes, and we don't know who's they are or anything. All we can do is turn them over to the Red Cross if somebody don't claim them.

I: Well, do you still think much about the storm?

R: No, hardly. Well, I do think about it quite a bit, too, but I don't give it too much thought, 'cause they've got enough help in here now, if it's handled right, they can get relief. Salvation Army and Red Cross have everything under control. There was a rumor got out that the Red Cross was gonna build for all the people that had their homes destroyed but I think that's all rumors. They got a lotta hopes built up on it. One man told them he was a storm victim. They told him to go borrow all the money he could, then they'd help him the rest of the way. Ain't a lot of people able to do it—ones that can't borrow enough money to build a home, so the Red Cross ain't helping them out there, that I can see. If the Red Cross is gonna finance, they ought to loan the money themselves. I believe they're trying not to get tied up with anything more than they have to.

I: Why do you suppose that is?

R: I really don't know. Ever since I've known the Red Cross they've been that way. Even in service. A soldier had to go through so many channels to borrow money from the Red Cross and if he missed one payment on it, he'd get court martialled, or something like that. That's one reason I've never had too much use for the Red Cross. Outside of an emergency, —they're good in an emergency—but there's so much red tape to it—I have to be desperate before I'd call on them.

I: What about the Salvation Army?

R: As far as I know, they're cooking food for people that don't have a home. They feed a lot of people at that field kitchen out there every day. They serve them three meals a day and I've never seen their set-up. I've seen them passing through town. That's about all I know about that. As far as I know, the Red Cross is taking care of everything else.

I: What about Harding College—do you know what they did?

R: They did a wonderful job. They had two empty dormitories and they filled them up with patients. Then they kept them right there until they could find hospitals for them to put them in. They'd transfer them out of there to any hospital they could find in the state, I guess. They sent a lot to Batesville. Some to Little Rock and some they got here. And as far as the doctors and nurses, I don't know where they got them. They were short on doctors for a while but I understand there was quite a few— But every empty building they had, they turned it over to the storm

victims. I believe there's some living out there, yet. I don't know how long they're going to allow them to live there. I don't know whether they even charge them rent or not. I know one lady I was talking to in particular—she's pretty well up in society—and she's living out there in a one-room apartment. 'Course her pride seems to be hurt a little bit.

I: Is that the one from Judsonia?

R: Uh, huh.

I: What did you think was about the worst thing about the storm?

R: Well, I guess people being killed was about the worst thing that could be. I don't know whether it's worse for those that got killed accidentally or those who lost about all their family and will lose themselves but they have to lay there and suffer first. Either way would be pretty hard, I think. Then there were some that had their home blowed away and were wounded, but didn't lose any family. They been taking it awful hard. It would be hard. I know it really would. A lot of people said, "We didn't have much; but what we had was worth a lot."

I: Well, what do you think kept you going through the whole thing?

R: Just had to. I generally work when there's a storm or anything like that. I didn't have to. I could just set back like some of them do, not doing anything—but my boss—the man I work for—he chipped in and did an awful lot and I worked for him. Sometimes I was under orders but I never give it a thought. It didn't make any difference..'cause I had to—somebody had to.

I: What did your boss do?

R: Well, he took in almost everybody in town that was a storm victim that sent their cleaning and didn't charge them a thing for it. And he donated some money. I don't know how much. He's well able to. He's a pretty hard man, some people think; but he has got a heart. And he's donated a lot of clothes—unclaimed clothes—'cause he didn't have any use for them anyhow.

I: You said you worked Sundays. Did you work overtime? —besides that—on your regular weekdays?

R: Only maybe thirty minutes. A lot of people said they didn't have any clothes before they got enough clothes down in the Red Cross. We had to have clothes out and have them out fast. Well, every cleaning and pressing shop in town was overloaded, and we was all running late to get them out so they'd have something to wear. There was only about a couple or three days that we worked real hard like that. After that, why, everything sort of calmed down to normal.

I: Do you feel that the whole thing has changed you in any way?

R: I believe I'm a little more scared of clouds than I was. I never was hardly ever scared of thunder, lightning, or anything like that. Next time one comes up I'll investigate and see if I can see a funnel in it.

I: Do you think there's anything you would do differently as a result of the storm?

R: Well, if I heard of a storm, I think I'd try to get in quick and help somebody out. See, there's a lot of them—three people that died—that probably might have lived if they coulda got to them first. See, it wouldn't have been so bad, but they lost too much blood. I never give it a thought that there were so many being hurt as there were. See, they went 'way on up there, the people that were hurt, and that night, too, all I could see was the business district. I never dreamed of the whole town just being wiped out. And actually, we figured about the only people that were hurt was the ones that was actually right downtown.

I: Do you think the town of Searcy has changed in any way because of the storm?

R: Actually, I think there will be. Right now, though, I can't tell because there are a lot of people working for the Red Cross. I believe a lot of people have changed right now in the way they feel. More scared of clouds. I've heard a lot of people say they wasn't scared of clouds, but who say they are now.

I: What about their feelings? Do you think they'll feel any differently about things?

R: In what way?

I: Oh, I don't know—it's up to you—

R: Well, I think so, in helping people. I believe they feel more like they should have if anything ever struck again 'cause they figure they might be in it the next time. I think they feel that way. If they don't, they should. People ought to be a little more generous, although I think everybody's been pretty good around here about donating.

I: Can you think of any way in which the relief aid could have been improved?

R: Offhand, I can't. Donations of clothes—they ought to have some kind of a production line. Have somebody issue each garment, instead of letting them go through there and just pick out what they need. 'Course, the way the stuff was brought in, it was just piled up and they didn't know one garment from another. There's so many people who come in and do get stuff that would have to try on back home. If they didn't like it they bring the clothes back over and call her. They could try to keep it straightened out as much as possible, I mean—each garment was separated—such as coats, pants, shirts, etc. But they let them crawl through it. That was another bad thing, I think. All they done was let them take it as they come. I

imagine part of the clothes were destroyed by being handled so much—roughly, and torn.

I: Have you gotten to know anybody better since the tornado?

R: No, I don't believe so. I haven't talked to anybody, outside of my cousins, to amount to anything. People I always knew. I have met a few new people, but as far as getting acquainted, I haven't done that. I haven't hardly got time to get acquainted with anybody.

I: Do you think you've learned anything from this that might be helpful to others in a similar situation?

R: I think everybody ought to take heed to an electric storm, or a raincloud, when it gets dark like that and it should be daylight. Everybody that'll investigate in the case of storm's tracks, they ought to go through it, not be ashamed of it. If they have any high or heavy objects in the house, they ought to get down by it cause it might hold the stuff up off of them in case the house falls in. There's several lives saved that way. I know two or three said they didn't know what to do and they said they just squatted down beside a chair—something—platform rocker, or anything like that, and it helped knock stuff off of them. Anything higher than you has a chance to save you.

I: Do you think some people are ashamed to go down under something?

R: I think so. I've seen people laugh at people for going into cellars. And maybe those that really would have liked to go, it embarrassed them and they didn't go. I admit, myself, when I was a kid growing up, fifteen year old, maybe, there was one family I could remember. Every time it stormed they'd go to the storm cellar. Well, everybody in the community used to laugh at them, and make fun of them 'cause they was so scared of storms. I don't think anybody should do that. After all, if they are scared and nervous, why the best thing to do is go in and do what they want to do about it. I do know there's a lot of people building storm cellars that haven't had them. Out in the country, especially, where my folks live, nearly everybody out there is building storm cellars. I think It's put a lot of warning in people. I think people are being more prepared now for it than they were. 'Course those things happen so fast, you haven't got time to do nothing. There was a lot of people that were saved by going out and getting in the car, yet their houses were completely demolished. That's what I've always thought I'd do—get in the car. There were a lot of cars that were completely demolished that people were in, too, but they're still alive.

I: Do they just sit in their cars?

R: Uh, huh. A few heard—a few say they got in their cars and parked them where they'd be facing the wind. I talked to one man that came two hours after the storm—he was driving a big tractor truck—sleeper-cab—and he was going to Bald Knob and Judsonia, and he ran right into the storm so he stopped the truck. It was empty and he had no more than got stopped

than he felt it moving. He locked his brake to keep it from rolling. He felt the truck moving down the highway sideways. He says it turned him over right in the middle of the highway. There was several that way. All along the highway you could see cars turned over. But it seemed like after they turned them over, that was the end of it. Never did turn them over any more. Got them back up on their side and that was the end of it.

I: Is there anything else that might help somebody in case of an emergency?

R: Not that I know of. If they're in an old building I'd advise them to get away from it 'cause it'll go down. It seemed like the wood buildings—frame buildings—stood better than brick or rock houses. I don't know why, but in Judsonia an awful lot of them stood up, or maybe it'd just tear one side of the house out and leave the rest of it standing. I believe I know why, too; 'cause rock or brick won't give or bend but wood will bend. I think I'd rather be in a frame building than rock or brick if a storm came.

Appendix A-8

The respondent is a married woman, aged 31 years, who was at home in Searcy with her husband, her two children, and her sister-in-law when the storm struck. She was cooking supper, had pulled the blinds when it looked like a storm, and didn't realise a tornado had hit until a neighbor told her. Her brother came for her husband and they left for Judsonia without telling her about the storm so that she would not become upset.

Her house was not damaged, none of her relatives or friends was hurt, and she worked for the Red Cross for two and a half days, but the stories of the victims made her "so nervous" that she quit. She had little contact outside the house after that time and relied on others for most of her information.

I: Will you tell me about your story?

R: Well, I didn't really know the storm was on till after it was done and over with. It done happen so quick that I didn't realize that was happening myself. I was cooking supper and I just didn't pay it no mind. I didn't get scared till after my husband went out in the country to his folks and while he was gone in the meantime I heard about the storm.

I: How did you hear about it?

R: There was a lady—is gonna keep my little girl—with me. My little girl and she came after the storm, say it blowed Judsonia away over there. And that's the first news we had—I don't know how she heard it—but that's first news we had of it.

I: Who was home when you heard about it?

R: Who all was home? Well, I don't know was they anyone on the other side or not but my husband's sister was here with me, and my two children, and then later a neighbor girl came over here—lives next door to me—she came over and stayed a while. Then when my husband got home, was him and his brother-in-law was here. We made a hide out just soon as he got home. Well, we tried to get into Judsonia and naturally we couldn't and we got over there and got blocked. We shouldn't even a-tried to go over there but we felt it would be of some help and so we tried to get in there—we got almost up in town and the road was blocked and we couldn't get in there. So we just turn around and come on back home.

I: Where was your husband?

R: He was here. He was here walking the floor back and forth. He was trying—kinda watching the clouds, you know. But he didn't—he said he thought it was a storm but he never dreamed of it being here—anywheres close here. It was lightning so bad I pulled the shades. I thought—that was the only way—I got scared, you know. The lightning looked like it was almost in the house and I thought I'd pull the shades but I never dreamed there'd be a storm. I had no idea.

I: You were scared by the lightning?

R: That's it. You know, that's how I got scared about the lightning but I didn't know it was storming or anything. I don't know what I'd a-done if it had been—sure of it. 'Cause I'm sure I been nervous since every time a cloud comes up—I get so scared I don't know what to do.

I: What did you think when your neighbor told you there was a storm?

R: Well, I just couldn't believe it. I just couldn't believe that it was so.

"I." stands for the remarks of the Interviewer.
"R." stands for the remarks of the Respondent.

My husband came in—when he came in, why, we told him 'bout how much it had blown away on the road toward his father's out here; before I really believed that any of it could be so.

I: When was it your husband went out?

R: He went out just after it was over. My brother-in-law came by after he heard about it over there. Before he left home, a man came by his house and told him that they had been a storm. That is, he overheard this man tell there had been a storm and he's supposed to have a man in the car with him then that had been killed. He was taking him to the hospital and so he knew where this place was at and he came by here and left his wife and taken my husband on out there and didn't tell my husband—and he wouldn't tell us for fear it'd worry us women—until he'd done got out of town with him, and so we didn't know a thing more about it. Like I say, this lady came and got this little girl, told us about it—what'd happened.

I: What did you think when your brother-in-law took your husband away?

R: Well, I couldn't have any idea because he had asked him to go with him. I thought, "He's just going up to town—" and my husband said, "Well, where you going?" —and he never would tell him where he's going. He's kidding, laughing with him, says, "Oh, we won't be gone ten-fifteen minutes." I guess they's gone three hours before they got back. Got out here in this road, you know, everything was blown out'n the road and they like to never got to his father's. I tell you I was so upset over the whole thing. I worked with the Red Cross for a while with those clothes and things and we carried food in to Judsonia a couple of times and I don't know—I was just a nervous wreck from the time I heard 'bout it—well, every time I go back there, why, I can't hardly stand it to save my life. I'm so nervous any way all the time. I wanted to cry every time I went on through there—made me so nervous.

I: What'd you do then when you heard about it?

R: Well, like I said, we tried to get into Judsonia and couldn't go over there. Everywhere I went they said they wasn't anything could be done so early. Well, on Sunday evening when we came on back town and I saw they's working in the clothes up there and I asked them then if I could help. A lot of—you know—worked in there and I never did give anything in the way of clothes 'cause they went to advertise on the radio not to bring any more clothes so I just never did send any clothes in but we took food over to Judsonia a couple times.

I: What did you see over at Judsonia?

R: What did I see? Well, I couldn't tell you—saw a blown-away town, about all I can say.

I: How far did you get the first time?

R: We got within half a block of Main Street. There had been trees—had

fallen across the road, too, and everything. We got in such a traffic jame just as we got into town, and turn around and come back. I was so scared--we left the kids here with my husband's sister and her husband and we went by ourselves up there and I was so scared to death up here --wanted to get back to them, too. So we just came on back.

I: Did you have any idea that there might be a tornado?

R: No, I didn't think. I didn't have any idea they'd was one until it was all over, --till I found that there was. Was like I say, I's cooking supper back there. I never even did go outside.

I: What did you think was going to happen when you heard there was a tornado?

R: I didn't have any idea.

I: Were you yourself in danger?

R: No, m'am.

I: Did you ever feel as if you were in any danger?

R: Well, yes. I was afraid we might be--I was specially about three o'clock in the morning that was--Saturday morning--when it came--they said it was another one came through that'd taken England and some of these other places out through here. I was really afraid of that one.

I: When did you hear that?

R: Didn't hear that till Sunday when we went out to my husband's mother's.

I: Did you hear anything that morning?

R: No, not that I know of. I didn't hear anything about the storm--this was the storm that came at three o'clock--till we went out there.

I: Did any of your family get hurt?

R: No, m'am.

I: Did any of your other relatives?

R: We didn't have anyone in there. Not even anyone that we knew. We didn't know a soul that's over there.

I: Were you at any time worried about what might happen to your home?

R: Well, I was worried for fear that we could be blown away. It got so close, naturally it'd make anyone wonder and worry. It's just a miracle that it didn't pick Searcy up.

I: How did you feel when you heard about it?

R: I don't know hardly how I did feel. I was so upset. 'Cause I just couldn't believe that it happened until I'd seen some of it myself, really. Just didn't seem possible that it could be. Because we didn't have much sign here, we didn't have anything that it was a storm right around the house here. It didn't blow any trees—it just blow a chimney top off over here. My sister live over on other side of this block and it blow a couple of trees down over in her yard, I think. 'Course I didn't know they's down until it was Sunday—Monday—'fore I see them and they told us about it. I didn't realize it was that close.

I: You said you were upset?

R: Well, no, just for my nerves—I'm just highly nervous and can't help it, and of course, naturally, when I get the least bit scared or excited, why, I just—well when I relax it makes me sick. You might say, once I relax I'm just sick awful. It's one reason I quit working. I work two days and a half and then I worked till 9:15 one night. I says"I's gonna have to quit 'cause the more I work the more I see those people, the more nervous I was."

I: What about hearing about it—did that upset you?

R: Well, just that I was afraid. I was scared. I was excited, too. It was just—enough to worry anybody—that's normal—so many does get killed and left homeless and everything else.

I: You said when you got up to Judsonia you got upset—would you tell me more about that?

R: Well, everything's just blown—from the radio station—we began seeing signs of it—and then as soon as we turned off the main highway on the Judsonia road nearly everything was swept off cross there—just practically everything. There wasn't but a mighty few buildings left in there. I just can't hardly tell you how I did feel when I saw those laying flat and laying cross the road. It was raining so hard, too, that you couldn't see hardly what you was doing or where you was going. After the storm's over, why, it lightened up some. And then it started raining again, too. The traffic there was so heavy I was afraid we was gonna get in there, either be sent back out or have a wreck or something 'fore we could get out there. Save our souls I was relieved when we got out there. Person shouldn't never do that, I don't think—but that's the first thing you'll do—is to try to get into a place like that—like going to a fire. Some people helped out enough, but the people—they's a lot of them went on up in there that couldn't get in, just like we did, and they's more of a hinder than they were any good. Because they just had to keep watching the traffic and had to keep road open all the time, too, for ambulances and people to get in and out of there that was carrying people out of there. If I'd a been in any—I don't know what I would a done—same as they done—the best you could. Something terrible, I'm telling you.

I: What'd you do with the children?

R: What'd I do with them? Well, see, they were out—it happened Friday night

and their school was out—Friday evening. And they were—well, they go to school all the time and well, work, what work I done, I done the hours they was in school, see? Then of course they's with us over Saturday and Sunday. We went back in that Saturday morning. 'Course we couldn't get in there in the car—we hadda walk from the highway on into town. We didn't know until Saturday morning that Judsonia really was torn up. Could tell from the outskirts of it along the highway that it was damaged awful badly. You didn't realize it was damaged so badly till you got on in there. So we walked down in there on Saturday morning and then my husband's folks came down from Walnut Ridge and we all walked back in there Saturday afternoon—to show them—let them see. They's still searching then for bodies when we got in on Saturday morning. My husband, he thought he'd tried to help some of them—try to help some of them throw back some of the rubbish but they's so many of them up there that he couldn't do any good so we just looked 'round and came on home.

I: They were still digging there on Saturday?

R: Uh-huh, Saturday morning—they thought—I believe it's three or five beauty operators in the beauty shop they were digging for Saturday morning that we knew of, now we don't know whether they's anybody else or not.

I: Did you talk to any of the people over there?

R: No, I did not, anybody to speak of. One man came by, asked us if they had found anybody or if we knew anything 'bout his daughter. She worked in that beauty shop and he hadn't learned where she was at. He talked like he was out of town and heard about it and came in here to see about her. I still don't know anything about if she was ever found. They claim though that they weren't in the beauty shop—they never did find them in there. They had run—someone had said they had left the beauty shop and run somewheres else.

I: What were the people saying about it?

R: Well, I don't know—it's first one thing and then another. Didn't pay a lot of attention. We was with some more people and we were talking, you know, and I didn't pay any attention—except this man came by and asked....

I: Who were the other people you were with?

R: This girl and her father over here went with us over there Saturday morning. Then we had the children—kept me busy holding on to them, trying to keep them from moving around. They were so many people—they was as calm as they could be—they didn't look like they was scared. All that night after they heard about that storm they just screamed and cried here, well, I never got the little girl—she just never hushed. She thought her daddy was out in it, though, 'cause I was so worried, 'cause he wasn't coming home. And I couldn't imagine what was holding him and I was afraid maybe he get up there and maybe was in it. I didn't know how long the storm lasted. I didn't know anything about it. They were pretty upset about it that night but they haven't—they didn't seem to be very scared.

We went back up Saturday morning--they didn't want to--got back up there Saturday noon. They just stayed here with my husband's sister.

I: What did they say?

R: Oh, they just wanted to know what caused it and what happened and after that they was feeling so sorry. They was so sympathetic, both of them are, about anything like that, and they were just thinking about how bad it was and everybody's things--how many of them were blown away. Almost every time they'd see something, why, they have something to say about it. Every time we'd pass a car or house was blown away, or anything. Wanted to know if it'd kill anybody and what did they do with them and the people that was left there, or that didn't get killed, where'd they go to?

I: How'd they seem to take it?

R: Well, very well. You know, that night they cried about it, but it was nerves.

I: How were they after that?

R: Well, they wouldn't want us to leave them, they just kinda scared they didn't want us to leave out of the room with them.

I: Do they have any trouble eating?

R: Well, I wouldn't think that's affected them. They's not the type that eats very much in the first place. They never fail to sleep well. In fact, when we got back they were asleep that night we came back from over there--that Friday night that it happened. When we got back home, why, they were already in bed asleep.

I: Have any nightmares, do you know?

R: No.

I: What were some of the things that your neighbors have been saying?

R: Oh, well, I don't know. It was just so much gossip going on until you don't even recall any of it hardly.

I: Did you, yourself, see any people who lost their head? Did you hear of any?

R: No. Oh, I heard this lady in here told me about some of them up at the cafe, I believe she said cafe--up here where she works at the Royal. It seemed to be in such a daze--some of the people that came in there--they didn't know--you ask them what they wanted, they didn't seem to understand. Some of them--You'd just make them take--just force them to take coffee--put it to their mouth or something. Now, when you hear anything, you just heard it, that's all--I don't know how true it'd be. I guess the ones didn't get hurt probably came in there to eat and I heard, too, that after it was all over with, that people were shocked so bad that they didn't realize just how bad they was--those that lost their homes over there.

--Until after it was all over with and they were able to go back over there.

I: Then what happened to them?

R: Well, I never did understand. Some of them just sick from shock. I don't know a soul that was in the storm. I talked to one lady. She was telling me about what kind of shape they were in--what--how they were left, you know, and everything, but she's the only one that told me too much about it. Two or three told me from Doniphan about how they were--how they all escaped and didn't get hurt or anything. This one lady, though, almost lost her little child though--got blowed away from them in the storm and when they found it, why, it had skull fractured--almost lost it.

I: Did you see anything wrong going on?

R: No. I've heard of it but didn't see any of it. Pick up anything over there--I don't think they had much chance to--had it guarded so well. They have guards stand everywhere about every block.

I: What have you heard about the way the relief was handled?

R: Well, I haven't heard anything about that--haven't had a chance to think anything. Only thing, I've heard people that wasn't in the storm area come and taken clothes, now that what I heard. And they claim--the ones that told me--said they knew them but I didn't know them. I didn't know too many people here. And they said they was some Searcy people, or people in around here, that come in and took clothes out of there that wasn't even in the storm at all. Probably have so many I don't think it would hurt if they had took out a few. You know, they just didn't take what they needed. They just take what they could get by with and that a lot of people couldn't get to come here and get them--they just take them and truck clothes to them--lots of them never did come over after them.

I: Why was that?

R: Well, one thing, I think their pride helps--has a lot to do with it. I'm sorry for them. You know, they just act like they hate it so bad--you ask them if they could use this--they say, "Oh, I got enough. I don't need any more. I can make out without it,"--thing like that and some of them understood that they would have to pay for these clothes.

I: What about your everyday life? Was it upset much by the storm?

R: Well, no. Well, no--not so much. I'm beginning kind of get over it now. I mean since I'm not around any of it any more. When we go through over there, I can't get it off of my mind and of course you still meet people yet, the ones that we haven't seen--that's the first thing you start thinking about is the storm.

I: In what way has your life been upset by it?

R: Well, it isn't, I say. 'Course while it first happened, why, I couldn't get myself together here for wanting to help, to do something, you know. I just forgot my house like I've done the last two days. I wanted to keep some one and yet I didn't—they claimed they'd be better off all of them in one place. Then they would be in individual homes unless we found somebody or knew someone that would rather come, so we just never did find anybody that wanted to come and stay. They have so much room over at Harding College and places like that—was equipped to take care of people that in that kind of shape.

I: Well, you were without electricity?

R: Oh, yes. That didn't bother me, though. Guess I was so thankful that we was still alive, that we just—I didn't let the lights worry me too much. Although I was kind of worried a bit over my ice box. When something like that happens, why you're so thankful that you don't worry about things like that.

I: Was there anything else you were without?

R: No, just the lights. And they weren't off for any length of time. They done an awful good job of getting them back as quick as they did, I think.

I: What sort of problems did the tornado raise for you?

R: Well, nothing, only just wanting to help someone—trying to help and wondering what I could do to help.

I: What did you see being done for people?

R: Well, people was trying to get clothing for them—I mean, give them clothing and food and 'course they's broadcasting every day for money for them, well, Saturday morning when we was over there people were just milling around more or less other'n those we saw in there trying to find those people.

I: Was everything possible done for them or could more have been done?

R: I'm not out enough to find out anything like that, but to my opinion there has been. But I know that there wasn't anything lacking on the clothes situation. When I was working up there that time they was still short on bedding and food and cash, but they were all right on clothes. To my opinion I just say second-hand clothing just don't go so well. You know, I think that's one reason that the people refused to come in here after these things. I worked in some stuff up there myself and I just not rather not pick up—they was so dirty—and I think anyone that sends things like that ought to have to wear them themselves. But I thought it was a shame that some of them was so ragged the things that they sent in there were. A lot of people had the attitude—just thought they'd be glad to get it. I don't feel that way about it. I said—we were talking to a disaster worker from St. Louis up at the Red Cross in Judsonia, and he said up there in St. Louis they didn't have any luck with used clothing.

He said when anything like that happened they bought everything new. If everybody would buy—just buy for one person they'd rather have something new as to have what they could go up there and get. 'Course there's a lot of good things up there, right enough. Lots of real good clothes there. But this idea that they are used clothing and they don't know who they came off of and where it came from and all that sort of stuff so a lot of them were left without any means of getting anything clean, you know, washing it themselves or even wasn't even able to have it dry cleaned. I just think there could have been some arrangements made, if nothing else, to have washed a lot of things that could be washed. If they're going to send in used clothing like that—but I guess it's a nice thing, though, at that—it's better than nothing, but I just wonder if that isn't what caused so many of the people to hesitate about coming after them. Because the food was taken right now. Couldn't keep food—seemed like the first few days, like I said, Monday and Tuesday and Thursday evening they kept broadcasting for help up there and so I went up Thursday evening and worked. But they's getting things pretty well under control. Didn't have any system of anything here to begin with. By the time you get everything sorted out in one and get it all fixed up ready to go somewhere, why, they'd come in and grab armloads and pitch it into a truck and haul it to the other place down here in town and get it down there and sort it again. They just wasn't any use about that. It's nonsense. I just got kind of disgusted with that, I say I can't understand—just look like they was just putting work on you 'cause you would do it. But they really got into a squabble over it—I'm telling you.

I: Who else was made about that?

R: Well, the Red Cross and Salvation Army got into it. Over the clothes. Some of them said they guessed it was because they didn't know which one was gonna get the honor of it. I said it looked to me like the working people ought to be the one to get the honor. I don't think at a time like that, that you ought to be on out after the honor, myself. 'Course you ought be thinking about what you can do and trying to get it done instead of trying to figger out the honor or who's gonna get paid for it. I tell you a time like that is a trying time, believe you me, and those people that were in it, that experienced it, really—knows what is.

I: Which problems do you think were handled well?

R: You mean what was salvaged now by the Red Cross? I wouldn't know. Everybody that I heard talking was against the Red Cross. They was for the Salvation Army. And I don't know anything about either one of them. We lost—our house burned while he was in camp and we lost our baby and the Red Cross loaned us some money and he said that we had to pay it back, and some of the people here understood that they would have to pay all of this back, 'course they announced over the radio that they wouldn't have to. They had heard it and they begin announcing it over the radio that they wouldn't have to pay it back, but my husband said that we paid every cent of it back. We had to. And then these people over here—some are really against them—they said they wouldn't do anything for the Red Cross. Mrs. P.'s father said if he was going to give any money to anybody it'd be the Salvation Army. Well, I do know that the Salvation

Army don't—they're not out to—taking up their time advertising and putting their signs up like the Red Cross done. They got their signs and flags on everything. And then there was some confusion at Harding College, they said. My husband heard that on his work, I believe. The Red Cross went over and put their flags up there, you know. And the Harding College president or something over there, why, he came out and told them they wasn't gonna put them up there. The Red Cross asked them who was running the thing, them or Harding College.

I: Then what happened?

R: I don't know—we never did find out whether they did put the flags up or not. We just wondered. We wondered since we never did drive over there and see if they had them up. I said we ought to just drive by and see but we just never did. But I don't know just from what little I've heard about them I think I'd lean more toward Salvation Army more than I would the Red Cross—I might be wrong 'cause truly I don't know.

I: During the storm, where did you get most of your information about what was going on?

R: Well, we heard a lot over the radio—most of what we got, other than just hear people talk, hear what they would say to us, but all we paid more attention to was the paper and the radio—unless we knew somebody that we knowed that they did know what they's talking about. You hear anything but the truth, I said, in a time like that, you really can. You hear everything but the truth.

I: Could you find out everything you wanted to know?

R: Well, as far as I know I did. But I'd still like to know what happened to those beauty operators. I'd really like to know if they'd found them.

I: Was it hard to find out anything?

R: No.

I: Was the information you got usually true or—

R: Well, I think it was true, more or less. After all, everything was right there for you to see. They couldn't have misrepresented it by any means. Because it's like a lot of those folks came down from Walnut Ridge—ones like ourselves—we couldn't believe it till we went in there and seen it for your own eyes. Just how bad that really is. But after they got in there, when they come out they—well, words just couldn't express how bad that really was. I know that's the way we were—we just couldn't realize it nor understand it, till after we had seen—till after you see it. It looks unbelievable almost after you see anything like that—how it took it in such a little time and done so much damage.

I: What were some of the stories that were going around?

R: They were just talk of the storm and of the Red Cross and the Salvation

Army. I know a lot of people said, too, that they would come near given if they knew some individual that was in it themselves. Knowing that they would get it instead of—well, I think we'd all feel more like that. If we knew that someone was a-getting what we give. You know, we'd be a lot prouder we gave it because if you gave it to somebody that you know would get the benefit of it, instead of taking it some of these organizations and letting them—maybe these people get it and maybe they don't. 'Course, to my opinion, in lot of cases, a lot of that—especially money—there's not as much of the cash as is donated as is gone for the benefit of the people as there should be. They may be but—maybe there's a lot of crooked people in this world—do anything to make a dollar.

I: Did you hear any stories about how much damage there was?

R: Oh, I've heard of several but I don't remember the estimations they gave on how much damage there was. I know it was pitiful.

I: What did you hear?

R: It came out over the radio and in the paper—it was in the night papes—all the time telling about how much damage done and then they tell it over in the news, too, how much damage there was done but I don't remember any of the estimates they made.

I: Did they sound reasonable to you?

R: Well, no. It really didn't seem like it could have been that much, but 'course anything like that, I guess, they go according to what'd cost to put that back. It's probably the way they estimate that but they's some of it didn't sound like they'd lost—I mean from the looks of their place. I know they claim this Jackson's property out here was damaged awful bad—got worse'n any of them, but I can't see where he was hurt—told how many hundred dollars damage—a thousand—was done to that house and you can't tell there was too much done to that house. I wouldn't complain if I hadn't had anything if it didn't hurt me any worse than it hurt some of these people that does lot of this complaining.

I: Was the storm much worse than you expected it would be?

R: Oh, yes. I never dreamed it could do anything like that. We lived—once when I was a girl-at home a tornado came but this was the second one I ever been close by, you know. 'Course that one came within about a mile of our place then. Kil[illegible] lot of people and everything, but Oh, I just never—they just wasn't a[illegible]ing—'course it was something to compare with this but there just wasn't as much of it—it didn't take as big a strip as this one took. I just never dreamed of it being—doing the damage it done and how it done it. 'Course, someone said it only lasted—someone said four and some said five minutes all it really lasted—the tearing down part, but the wind blew real hard for fifteen minutes, they said, but this here only lasted about four-five minutes. You think, hardly—it just looks impossible when you see what it done—to think it could take down in that little time. I got scared again just last Friday—I didn't know who I was. The clouds looked so bad that day—the wind blowed so

hard--but I never heard of one taking the streak that this one took--as long as it was or as wide--usually, you know, they claim it's just a narrow strip--but some guessed this to be at least a mile and a half wide.

I: You were--none of your family hurt?

R: No, we didn't have a sole relative or any friends. It got within, oh, I guess half a mile, probably, out here at my husband's parents but none of them were hurt or any damage done.

I: Were you worried about them?

R: I wasn't worried about them, I was worried about him. When he was going out there I had no idea he was going out there--I never did feel like they'd, well, I just couldn't believe that it'd hit Judsonia. When this girl come over here and told me--seem it just didn't register that it really did happen but then I was so worried about my husband after he left --I did hear about it and all that--I know I was afraid he was in it. He was gone so long there, you know, I was afraid he was in it. And after they got started out and seen how bad it was, and farther they went seem like the worse it got out that way, so they just kept--they just kept working their way out there till they did get out there finally. 'Course it took the lights out but they didn't have any lights for a while. But that's all that was wrong. Wasn't anybody had lights around here.

I: After the storm, did you have any trouble with your health?

R: With my health? Not any more than usual.

I: Did you have any upset stomach or--

R: Oh, yes, I had indigestion. I wonder if that's, you know--what caused it--nervous indigestion--but I have that just over anything that comes along so it doesn't make any difference.

I: How long have you had it?

R: Oh, I don't know, but I've had it. I haven't had a spell in a long while 'cause I haven't been as nervous as I was over there. I did have indigestion awful lot over there.

I: Is it still bothering you?

R: Once in a while, not often, not as bad as it was--I'm getting more or less reconciled, I reckon.

I: Any headaches?

R: No.

I: Are you sleeping all right?

R: I do pretty good--when I get to sleep. It takes me so long to go to sleep at night.

I: Did you have a lot of trouble with that after the storm?

R: I didn't sleep too much while that was going on, I really didn't. The one day we just—you know, I couldn't go to sleep—just laying there thinking about it.

I: How long did that last?

R: Oh, I guess about a week. Something like that—until after I quit working at the Red Cross—'cause after I quit working down there with the clothes—being away from it, I was all right.

I: Do you have any aches and pains?

R: No, nothing else but just my nerves, that was all. And then not sleeping well, 'cause I was a week, any way, I guess, before I got to.

I: Did you dream?

R: I don't remember a-dreaming. If I had a dream, don't remember anything about it. They usually do—they claim you dream about whatever you go to bed with on your mind, but that isn't true—not in every case.

I: Well, have you found it harder to keep your mind on things?

R: No, not caused from that—I can't tell.

I: In general, how would you say people here in town behaved?

R: Well, far as I know, they was all right. I didn't see anything going on or in fact I didn't hear of anything like that?

I: How did they act?

R: Well, everybody seemed to be very calm about it, you know. 'Course, everybody was just a-going to and from, working like everything. But when the storm happened, everybody over there was just as calm as they could be. I don't know—I can't think how they could be but I guess they was just shocked so they said they wasn't any screaming, any crying a-going on over there. It doesn't sound reasonable—to think—you'd think that they'd really be a lot of it going on. They worked all night over there from what I understood. I'm pretty sure that they did, but they said they worked until they—I mean they didn't quit, didn't stop till they got everybody out that they could hear, you know. They didn't hear any more moaning or anything, why, they took everyone out that night that they could hear and get a hold of.

I: What sort of people do you think did an especially good job?

R: Well, I tell you, I just don't correctly know. 'Course, just about everybody done the best they could. 'Course everyone likes to feel that they did, anyway. Try to feel like that maybe they could done the best they could. I was through different buildings here in town where I worked at

and they seemed to have plenty of help. It was advertised, but now I wouldn't know it myself if I hadn't just passed by and seen it, that they were working up there on the Sunday.

I: Which ones do you think turned out to be the best people to have around?

R: No, I wouldn't know. My husband's coming--he can tell you more about it than I can--he's with the people and I'm not out much.

I: Well, how'd you get started on this relief work?

R: Well, we just drove by--let's see, Saturday night--I went out and asked, went out to the Legion Hut and to the Armory, to see if we could see anybody we knew up there, and they told us that they didn't have anything right at the Legion Hut but that they had just lots of clothes over at the Waitkin Motor Company there and they were unloading. We did drive on by there. We saw a big truck there unloading the clothes. And Sunday evening we came back into town, why, we stopped by there to see they needed any help, you know, and they told me they sure they could use me so I went in Monday morning.

I: You said you took food up to Judsonia?

R: We took it in a couple of times. My husband's folks sent out some stuff. We went out there one night and they sent in some eggs, meat and butter and we taken that over there for them. And we'd taken in what cooking vessels I could and dishes I had to spare and food I had to spare.

I: Did you do any other work out there in Judsonia?

R: No.

I: How long did you work at the Red Cross?

R: Well, I's work Monday and Tuesday and then Tuesday night at 9:15, oh, a couple hours, and I worked Thursday afternoon. My husband worked in the company he's in, they helped clean up over there, I think, Monday, at Bald Knob and Judsonia, Monday and Tuesday.

I: When things calmed down, did you find it any harder to do your regular work?

R: No.

I: Do you still think about the storm?

R: Yah. Can't help but think about it.

I: What do you think?

R: Well, just, you know, just wondering. I feel so sorry for those people that are in it, you know, that were losing their home and everything.

I: You said you couldn't sleep for thinking about it. What were you thinking then?

R: Well, you know, I just had my mind on the storm and on all the people that were in over there. How awful it really was.

I: Still talk about it pretty much?

R: Well, you know, not near as much as we did for a while. Because not any of it in the papers any more, just not in the news, so just don't think about it as much any more.

I: What do you say about it now?

R: What do I say? I just ask, you know, the ones I haven't seen. I just ask them what, you know, just ask them if they heard about the storm.

I: What was the worst thing about the storm for you?

R: No, I couldn't tell you—I really don't know.

I: Does anything stand out in your mind at all?

R: No—just, you know—other than the people that are left—I said the people that are left worse off than the ones that it really took on, I guess, because lot of them are left homeless and a lot of their families are broken up and I always wish they's something I could do but just seem like I can't do for myself the way I'd like to much less anybody else—seem like little that we can do.

I: Do you feel as if you're changed in any way on account of all this?

R: Well, I should be...all such a lesson for everybody—everybody ought to change for the best.

I: What do you mean—Lesson?

R: Well, you know, that is an experience everybody had to face. It really ought to make them change and want to do right 'stead of living like lot of them lives.

I: Have you changed any of your ideas?

R: Well, not that I know of—

I: Do you think there's anything you would do different as a result of this?

R: I don't know what it would be.

I: Do you think that the town has changed?

R: Well, I just couldn't tell you—I just don't know.

I: Have you got to know anybody better?

R: No, just talk to them just a few minutes--I stay home pretty much--I don't meet too many people--only just you meet more at a time like that when you're out working with them.

I: Do you think you learned anything as a result of this?

R: Well, I really don't know. I think I can be more thankful than I was before this. You know, I'm satisfied with my surroundings than I was. Other than that I can't tell. Everytime I started to gripe about something, why, I--I think of those people that are less fortunate than I am.

I: You said that there were people--stories--about the Red Cross?

R: I just don't know any of the Red Cross workers myself, just what I have heard--just heard them talk about. 'Course the people I worked with up there, I didn't know them either. But they's a lot of people--I think they would a give if they'd know, you know, that it was for an individual--someone that they knew that they could help that would get the benefit of it. Talked to two or three, you know, that said that they hadn't give anything--if they just knew it'd be going, they'd get the benefit of it, they'd give. They asked if I knew of anyone--not knowing anybody, I didn't know who were the storm victims and who weren't.

I: I wasn't sure that I understood your reasons for stopping working at the Red Cross.

R: I just had so much to do here at the house with the kids and my husband working, and I was almost sick over working down there--then I had to quit or else I could be--so I just quit. I wasn't getting anywhere up there. I said--shoot, if I wasn't going to accomplish anything--people wasn't a-coming in, why, you know, that I could help take care of--to try to get them fixed up with any clothes or anything--so I just--just seem like I wasn't accomplishing anything--being away from home all day, as much as I had to do at home--housework that had to be done there. I'm just not well, anyway, so I just have to do what I can do at home, you know what I mean. I don't feel like doing my own work and as sure as I try to do something like that, why, I just can't make a go of it. I don't try to work out at all, you know--that's the first work I done outside my home work here.

I: How many times did you go to Judsonia?

R: We went over Saturday morning, Saturday afternoon. 'Course they--we went over Monday evening, I believe, after my husband got in from work, and then I went over again Friday evening--then we drove over the weekend on way out to Walnut Ridge. There's so much work here to be done that there'll be signs of this tornado for years to come. People that are able to build back, naturally are going to build right back. That what's heartbreaking--are those people that are not able to build their homes back. And these real estate men are gonna do their best to try to buy their place 'cause they feel in time like this that people gonna give their property away over there. I know they's a lady telling me

about one man. He had till the next day at noon to make up his mind to sell his property or whether he would try to run the risk of some time being able to build back. 'Course they lot of these people that were hit didn't own any property and was in bad shape to begin with before all this came along.

I: Did real estate men try and buy up?

R: That's what one lady told me—forget who that was. That man was thought he could get it just dirt cheap 'cause he knew they couldn't build it back. They'd just be glad to get it order to have the money out of it. That's just more or less taking advantage of the people, I think. Seems like it was my aunt telling me she heard, I'm not for sure. I's over to her house last night. I don't know whether I heard it over there or whether I read it in the paper—believe she told me. But that's the first I had heard of that, you know. But it goes to reason—sounds reasonable that they would. And they's probably people over there that don't want to build back there—maybe for fear of another storm or maybe they just not able to build back there or if they need to sell their place to have the cash to live on.

I: You really saw quite a bit of it, didn't you?

R: Yah. Seen all I wanted to see between here and far's it went other side Judsonia, and from here out to his dad's. I think I noticed in paper where they were advertising tornado-proof building material. I think that's so silly. There'll be a lot of people that will fall for that, specially these people that were hit by the storm, I think. And the way I see it—there's just not any tornado-proof building material—just go over Judsonia and look for your own eyes. There's not anything you can put up against that. When the Higher Power gets ready to take things like that, to my opinion, they're gone—don't care what it's made out of. But people will do that and that's another way of making money 'cause they know these people are scared and frightened over this tornado and knowing that it could happen again, and they'll go on selling this stuff here, making a big lot of money off of it and kinda break the people that can afford to build. Said they would last 200 years. Why, that's just—they's a lot of people thought these here brick homes—these cobblestone houses—well, they were just the stuff. Well, they were as many of them just about took down over there, looks like—the brick buildings, cobblestones, and all, went down over. You know, they went down just the same's the frame houses, and there is a lot more danger in them than in the frame houses, 'cause once a bunch of brick falls on you why, they's not gonna be much chance getting out from under it, to my opinion. There was probably more hurt in the buildings like that than they were in the frame ones—I wouldn't doubt what they was. However, they's people escaped over there that just—you wonder how on earth they done it, but they did. Not that anybody that wasn't—that doesn't believe in God that really ought to—they ought to know that human hands had no hand in this, when they see something like that. We have got people that don't believe in God, you know. They just swear there isn't any such thing. Even a sinner, myself,—I realize that this makes you realize even more that just how dargerous anything like that is and they's

bound to be something Higher having a hand in this than just people. Makes you realise how quick it could happen to you, too. 'Course, I've always--never have got to the place where I didn't think what something couldn't happen to you, but we got lot of people get so high up in the world think they own it and everything that's in it and everything else, and it takes something like this bring them down equal with standard of living again. Just fulfilled the Bible--don't see why anybody'd want to put up a story of building against those things.

I: Do you think there is anything people can do?

P: Well, I guess there is. I don't know but I still don't believe putting up any kind of a building like that to keep it from--well, I'm not any hand to go to storm cellars, myself, just--I don't know what you'd call it--some people call it hard-shelled Baptist--you know, I'm not a Baptist or anything, but I just believe what is to be will be if it's your time to go, you gonna go, I don't care where you're at 'cause it just been proved that people have gone. They've just been taken out of storm cellars and everything else, so that's why I say they's not any leave in running.

I don't know--it's really something when you really get thinking about it. I 'spect if I was close to one and seen one coming that I'd hide out for it. I tell you, I know we did with the first one, I know that. I remember before--'course everybody--I mean in that neighborhood--they build storm cellars just coming and going, which they'll probably do after this, too. Was so scared. You know how panicked we was--we just couldn't--well, it was that way for a long time, too, I tell you. Seems like just never got over that. And that was just a small strip of it that it took in there, to compare with this.

Appendix A-9

A Plan for the Study of Disasters

Budget Bureau No. 49-R 329

Approval Expires 30 June 1951

NATIONAL OPINION RESEARCH CENTER

University of Chicago

A Plan for the Study of Disasters

Prepared for

MEDICAL DIVISION, Army Chemical Center, Chemical Corps
Department of the Army

It is understood that both the sampling methods and the questionnaire herein proposed will be adapted to the type of community and type of disaster involved. In this adaption full consideration will be given to the suggestions made by Dr. Herbert Goldhamer and by others at the conference held at Medical Division, 10 January 1950.

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Studies of disasters have been both sparse and unsystematic. As an examination of the existing literature will indicate, they consist primarily of isolated descriptions of a variety of natural disasters—floods, explosions, fires, mass hysterias, etc.—and of wartime observations.

Yet, there appear to be constant elements in the great variety of situations usually referred to as "disasters." The common factor in all of them is the presence of actual or potential danger, loss and deprivation for the residents of the affected area, and the story of disaster control may be summed up as attempts to preserve usual functioning at as efficient a level as possible, while combatting the danger and minimizing loss and deprivation.

It would appear from the literature bearing on many disaster situations that the minimum elements in efficient disaster control are:

1. The reduction and control of panic reactions. While people are badly frightened and out of control, the emergency is at its worst. Once people can be brought to subordinate their fears to disciplined countermeasures, reconstruction is under way.

2. Organization and effective leadership. It is apparent that one of the ways in which panic is brought under control is through the emergence of effective leadership which organizes the activities of people and directs them toward practical ends. This means, of course, that the specific objectives of control in a particular disaster must be formulated by or for the leadership.

3. The elimination of confusion. One of the objects which organization and good leadership achieves is reducing the situation to order by:

   a. Directions to the public as to how to proceed. The communication of the specific objectives of control to the public along with specific instructions as to how to implement these helps to reduce the public's feelings of helplessness and makes for efficiency of effort.

   b. Adequate and authoritative information. A realistic view of the situation, widely disseminated to the public, will discourage the spread of disruptive rumors, and will combat unwarranted reactions of either defeatism or exaggerated optimism.

A central authority would seem to produce order most rapidly; in every instance examined in which several autonomous groups entered the relief work, there were conflicting definitions of objectives, contradictory instructions to the public, and competition between authorities, all of which impeded both the emergency and the reconstruction work.

4. The securing of conformity to emergency regulations. It is essential that the people of the community comply with necessary regulations; carry out special tasks to which they are assigned, and refrain from disruptive and lawless behavior during the emergency.

5. The minimization of discomfort. Every effort should be made to minimize physical discomfort, to provide relief, food and shelter to the victims of the disaster.

6. The maintenance of public morale. Morale, of course, is the key to disaster control; without it the cooperation and conformity needed from the public will not be forthcoming. Major morale problems which need to be met are:

   a. Seeing that energies are directed toward "the common enemy"—the disaster—and not diverted into resentments and aggressions within the population.

b. Equalization of sacrifices as far as possible. Invidious resentments may be minimized in this way.

c. Attention to the problem of public understanding. Adequate explanation is needed to help the public accept the necessity of unavoidable sacrifices and to understand the need for various special regulations.

7. Rapid reconstruction. Perhaps the greatest element in maintaining morale is visible evidence of progress being made toward normality. For this reason, rapid reinstitution of ordinary services—gas, electricity, transportation, etc.—may hearten people disproportionately.

Because of these constant elements in disasters and in disaster control, it is felt that empirical study of peace-time disasters will yield knowledge applicable to the understanding and control not only of peace-time disasters but also of those which may be anticipated in the event of another war. It is recognized, of course, that there are certain differences between war disasters and peace-time disasters, just as there are differences between various types of peace-time disasters and even between two peace-time disasters of the same type.

Broadly speaking, there are three general kinds of disasters: natural, industrial, and war-associated. The natural disasters are exemplified by such things as earthquakes, floods and hurricanes. For the most part, natural disasters are characterized by being unpreventable, though, often, there is advance warning of them and measures may be taken to reduce their effects. They usually constitute a threat to all the residents of the affected area.

Industrial accidents, on the other hand, come without specific warning; such things as explosions, mine cave-ins and fires may have been predictable from violation of safety regulations, etc., but their occurrence is sudden. They vary in the extent of their threat; they may directly affect only the families of the few men trapped in the mine or they may threaten the entire city as in the Texas City explosion. Industrial accidents are, of course, man-made, and therefore avoidable.

The major war disasters to be anticipated are saturation bombing, atomic bombing, and biological and chemical attack. Like industrial disasters, these war disasters are likely to be sudden; there will be advance general knowledge that such things may occur, but the advance warning of any particular disaster may not be given until a few moments before the disaster strikes. Like industrial accidents, too, war disasters are avoidable; they become possible because of the war, and even then might be prevented by adequate defense. War disasters, of course, threaten the entire population of the attacked area.

Natural, industrial and war disasters, then, are all examples of extreme threat to a population, but they may differ in inevitability, scope, and prior warning and preparation. Careful selection of the natural or industrial disasters to be studied can furnish an approximation of the conditions to be expected in a war disaster, and, therefore, permit generalizations applicable to war disasters as well as to the situation studied.* Moreover, the accumulation of a number of

* It should be noted that one factor in war disasters, namely, people's adherence to the cause for which the war is being fought and their willingness to make sacrifices on its behalf, cannot be duplicated in any peace-time disaster. Generalizations from peace-time disasters to war disasters must be made with this limitation in mind.

disaster studies which furnish comparisons and contrasts with reference to both the factors of inevitability, scope and prior warning and the disaster control methods employed will extend the generalizations which may be made about disaster reactions and increase the certainty of these generalizations as well. The systematic study of peace-time disasters thus holds promise of yielding most valuable results.

A plan for the empirical study of disasters is needed beforehand, if the research is to be carried on immediately upon the occurrence of a disaster. A plan of this kind cannot, of course, be fully blueprinted in advance of knowledge of the type of disaster and of the locality in which it occurs, but insofar as interest in any given disaster goes beyond the specific event, the major problem is one of gaining understanding of the behavior of people under stress. The general questions to be answered are:

1. Which elements in a disaster are most frightening or disrupting to people and how can these threats be met?

2. What techniques are effective in reducing or controlling fear?

3. What types of people are susceptible to panic and what types can be counted on for leadership in an emergency?

4. What aggressions and resentments are likely to emerge among victims of a disaster and how can these be prevented from disrupting the work of disaster control?

5. What types of organized effort work effectively and which do not?

The questionnaire included as Annex A is designed to explore these general problems. This questionnaire is not intended to be used in its present form in any particular study. Rather it has been designed to be inclusive, to touch on all of the problems which may be encountered in a variety of disaster situations. In many disasters, some of the questions will be inapplicable, and the emphasis given various aspects of disaster reactions will also vary with the disaster selected for study. This questionnaire, then, is a kind of master guide from which questionnaires applicable to a variety of situations can be quickly adapted. It should also be remembered that the questionnaire has received no pretesting, so that some modifications of it will probably be made to ensure its clarity and intelligibility for the respondents before it is employed. As a guide to the questionnaire, we may classify the questions as follows:

1. Panic and fright reactions and their control: Questions 2, 3, 5, 7, 8, 10, 11, 12, 13, 14, 24

2. Extent of suffering, loss and deprivation: Questions 6, 10, 11, 12, 13, 20, 39, 40

3. Behavior during the disaster: Questions 1, 4, 26, 27, 28, 30

4. Efficiency of disaster control: Questions 15, 16, 17, 18, 19, 21, 25, 29

5. Qualities of good disaster leadership: Questions 22, 23, 24, 25, 41

6. Adequacy of information policies; rumors and rumor control: Questions 31-38

7. Invidious resentments, aggressions: Questions 16, 17, 19, 21, 22

8. Background of the informant: Factual data

This questionnaire, as modified after preliminary field experience and in the light of the particular situation in which it is to be applied, will be used in interviewing a representative cross-section of the general population of the community selected for study. The survey plans are as follows:

1. Type of sample. A disaster study presents peculiarly difficult sampling problems. In the event of a study of a disaster on a scale such that part of the town is destroyed or many people injured or rendered homeless, it is important that sampling methods which ensure the proper representation of these special groups of victims be employed. It can safely be said in advance that quota type sampling methods, which fix the number of people of each type to be interviewed (e.g., men, women; old, young; rich, poor, etc.), but leave the selection of particular respondents fitting these quotas to the discretion of the interviewer, will not prove satisfactory. It is not difficult to imagine that interviewers will tend to avoid the most devastated and dangerous areas and the most injured and grief-stricken people in making their selections, thus introducing serious bias into the sample.

For this reason, strict probability type sampling, in which the individuals to be interviewed are selected in such a way that each individual has a known probability of being included in the sample and no personal judgment enters into the selection of respondents, will be adhered to as much as the emergency conditions will permit, even though the use of this type of sampling will involve greater expenditure of time before interviewing can begin. The exact sampling plan employed will have to be worked out on the spot, when the local situation is fully known, and the mobile team directing the study will include a competent sampling statistician capable of quickly designing and executing a sampling plan adapted to the conditions he finds.

2. Size of sample. Study plans call for 400 interviews. With a probability sample of this size, the chances are 95 in a 100 that the actual proportion in the population who have a given characteristic (an opinion, feeling, experience, trait, etc.) will not differ from the proportion obtained in the sample by more than 5%. Besides ensuring the reliability of quantitative results, this size sample will provide sufficient cases so that important comparisons may be made—differences between those who suffered extreme deprivation and those who did not, for example; or differences between the old and the young; between those with family responsibilities and those without; between those with previous disaster experience and those without, etc.

3. Type of interview. Interviewers trained in non-directive, intensive interview methods will be used. They will receive special training in the subject matter of the study so that they can explore each question fully with the respondent. Interviews will be recorded verbatim so that

complete protocols of each interview will be available. As the questionnaire now stands, it is estimated that more than three hours would be required to complete an interview, but with the reduction in length to be expected from the elimination of inapplicable questions and of topics of lesser importance in the particular situation, the average interview time should not exceed two hours. It is felt that the subject will be of sufficient interest to respondents to sustain attention for a two-hour period, but that interviews of greater length would create difficulties in getting a complete interview in one session, thus lengthening the study time and increasing administrative problems.

4. Background exploration. In addition to this systematic interviewing of the general population, less formal interviews, covering much the same topics, will be conducted with community leaders and others in a position to have greater knowledge of the disaster and the disaster control efforts. These interviews will furnish more expert and informed accounts of the disaster, and description and analysis of public reactions to it and of the adequacy of control measures, all of which information will be of great value in interpreting and evaluating the popular reactions uncovered by the systematic interviewing. Informal interviewing of casualities of the disaster, people who had harrowing experiences, or who performed feats of valor, etc., will also be undertaken in the early days of field work, before their emotional reactions become dimmed.

5. Time schedule. A mobile field team of five—field director, two assistant directors and two chief interviewers—will leave for the study point within 24 hours of official notification to proceed with the study. These people will be exceptionally competent research workers, who together will have all the skills necessary for the conduct of the study from writing new questionnaires as needed to designing the sample and conducting difficult interviewing assignments. Three weeks will be needed for completion of the field work: Informal background and exploratory interviewing, pre-testing, completion of sampling arrangements, and recruitment and training of supplementary interviewers* will take 9 days. The bulk of the interviewing will be completed between the 10th and 16th days, leaving the 16th to the 21st days for cleaning up difficult interviews and for completion of background interviewing. The field diary is shown in the accompanying chart.

It is recognised that time forms the major obstacle to disaster research. It has been suggested, on the one hand, that unless interviewing begins within 5-18 hours of the disaster, many of the psychological reactions will be lost, panic forgotten and behavior rationalised. On the other hand, it is also suggested that interviewers are likely to encounter hostility and a good deal of resistance if they are in a disaster area during the crisis phase but are not participating in the

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* It is expected that 25 interviewers will be employed in addition to the mobile team of five. Some of these will be recruited in advance of the survey, if financial arrangements can be made for their recruitment and maintenance while the study is pending, but some of this number, at least, will be recruited locally.

disaster work. As the time schedule indicates, however, there is no practical way in which systematic interviewing could be launched this soon, even if interviewers could be persuaded to accept the personal risks entailed.

It is our conviction that a great deal of useful information can be gained from a disaster study, even though the interviewing is two weeks removed from the crisis. The strategic bombing surveys of Germany and Japan, conducted many months after the actual bombing, still yielded many insights into reactions and behavior under these emergency conditions, and there is every reason to feel that a disaster study conducted in a matter of days after the acute phase would yield still more.

Yet it would certainly be highly desirable if the systematic research could be supplemented by observation of and participation in the crisis stage of the disaster. It is with this thought in mind that the two chief interviewers are assigned to exploratory interviewing during their first three days in the field. However, it is felt that this arrangement does not sufficiently meet the need for early observation. In our judgment, a team of observers, consisting of personnel trained in anthropology, sociology, psychology, and psychiatry, should be sent into the disaster area immediately. These observers would be free to take part in disaster control activities, talk informally with victims and gather all the first hand impressions they can. Their observations would, then, supplement the formal research and would be available for the guidance of the research team in adapting the questionnaire for use in this disaster.

If desired, the National Opinion Research Center would organize such a team by contractual arrangements with staff members of the University of Chicago.

TIME SCHEDULE AND PROCEDURES IN FIELD

DAY	FIELD DIRECTOR	FIRST ASSISTANT	SECOND ASSISTANT	TWO CHIEF INTERVIEWERS
1	Makes local arrangements; rents office space, begins informal background interviews with community leaders	Begins design of sample	Begins recruitment of supplementary interviewers	Begin informal exploratory interviewing
2	Continues background interviewing	Continues design of sample	Continues recruitment	Continue exploratory interviewing
3	Continues background interviewing	Block selection completed, listing sheets prepared	Continues recruitment, has recruited sufficient interviewers for listing and pretesting purposes which begin the 4th	Continue exploratory interviewing
4	Trains pretesters, pretesting begins	Trains listers, listing begins	Continues recruitment	Assist in training pretesters, pretesting
5	Pretesting continues	Listing continues	Continues recruitment	Continue pretesting
6	Pretesting continues	Listing completed, selects sample of dwelling units, begins transcription to enumeration sheets	Continues recruitment	Continue pretesting
7	Pretesting completed, revises questionnaire, arranges printing of questionnaire and other forms	Completes transcription, prepares individual interviewer assignments	Completes recruitment	Complete pretesting
8	Begins final training	Assists in final training	Assists in final training	Assist in final training
9	Completes final training	Assists in final training	Assists in final training	Assist in final training
10-16: Primary Interviewing period	Supervision of 27 interviewers, each with quota of 15 interviews	Assists in supervision, continues background interviews	Assists in supervision, continues background interviews	Interview main sample along with staff of 25 interviewers
17-21: Clean-up interviewing period	Supervision, interviews "hard-to-get" cases, completes background interviewing	Interviews "hard-to-get" cases, completes background interviewing	Interviews "hard-to-get" cases, completes background interviewing	Interview "hard-to-get" cases

Appendix A-10

Interview Schedules and Other Materials Used in Arkansas Field Study

NATIONAL OPINION RESEARCH CENTER
University of Chicago

Survey 308 FS—PROCEDURES FOR SELECTING RESPONDENTS

These procedures are to be followed rigorously in interviewing community cross-sections.

1. GO TO THE SPECIFIED DWELLING UNIT

You will be given a supply of forms called "Face Sheets." On each of these forms there is a complete description of a dwelling unit and its location. (A dwelling unit is a room or series of rooms under a common roof permanently occupied as living quarters by a person or a group of persons who are regarded as living together. Thus, it may be an entire house, half of a two-family house, an apartment, a single room in a residential hotel, a room over a stable or garage, a trailer; etc.) The dwelling units assigned to you will be spotted on maps in the office and you will also have a map of your own on which you can copy the locations of your du's.

Once you know the specific locations of your du's, visit each one. Make sure to call at the exact du assigned. In no event are you ever permitted to make any substitution for a prescribed dwelling unit. Be absolutely sure that you have the correct dwelling unit, and, in case of any doubt, CONSULT YOUR SUPERVISOR.

You may find, when you get there, that the dwelling unit has been destroyed or rendered unoccupiable by the tornado. In cases like these, proceed according to the instructions in 7 below.

2. INTRODUCE YOURSELF AS BRIEFLY AS POSSIBLE

As an opening, you might say, "Good evening, I am working on a study of the tornado for the National Opinion Research Center. Would you kindly tell me how many adults, 18 years or older, live in this household?"

Most people will be satisfied with this explanation, but if an occasional person should wonder why you want this information, you can explain that it is needed in order to do an accurate study. You might say, "For this study, we have selected 300 homes in the area hit by the tornado. From the people living in these homes we pick certain ones just by chance. So, in your home, I'll pick one person from all the people over 18, and then I'll want to talk to that person about what happened to him during the tornado."

3. LIST ALL ADULTS LIVING IN THE DWELLING UNIT ON THE DAY BEFORE THE TORNADO

Make clear to the person giving you the listing (enumeration of household) that all adults who regularly lived in the dwelling unit, up to the dislocations caused by the tornado, are to be included. You will, therefore, include maids, hired hands, and other employees who sleep in the same dwelling unit, as well as roomers and boarders. Exclude guests who maintain homes elsewhere or those who have joined the household since the tornado. Do not list a family member who is and has been away at school, in the Army or on a long trip that

is not related to the tornado. Be sure not to overlook the person you are talking to, if he or she is an adult.

YOUR LISTING SHOULD INCLUDE ALL ADULTS WHO ARE NOW EVACUATED ELSEWHERE, IN HOSPITALS, OR DEAD BECAUSE OF THE TORNADO, IF THEY WERE LIVING IN THAT DWELLING UNIT JUST BEFORE THE TORNADO.

After you have determined how many adults lived here just before the tornado, you must ask the age, sex and relation to the head of the family—usually the male main earner—of each one. This is done to avoid identifying people by name. Be sure to specify the relation to head in unequivocal fashion; for instance, never list "Father, mother, daughter;" instead, list "Head, H's wife, H's daughter," or "Head, H's mother, H's brother." You must use a fixed point of reference in specifying kinship, and this is the head.

List the adults and the required information about them in the space provided in the top left half of your Face Sheets. You can list them in the order mentioned or in any order you want.

Space is provided to list six adults in the household. You will rarely find households with more adult members than this, but, if you do, list the first six mentioned to you and omit the rest.

4. LIST ALL SUB-ADULTS LIVING IN THE DWELLING UNIT ON THE DAY BEFORE THE TORNADO

List the sub-adults in the table in the upper right of the Face Sheet, following exactly the same rules as those just given for adults.

5. RANK ALL ADULTS IN ORDER OF AGE, FROM OLDEST TO YOUNGEST

After you have listed all adults by age and sex, assign a rank to each adult listed, even if they are now absent from the home—temporarily housed elsewhere, hospitalized or dead. In the column labeled "Rank Order #," place a 1 on the line on which the oldest adult is listed, a 2 on the line for the next oldest, and so on down to the youngest adult listed.

If you find that you have accidentally listed a person under 18 with the adults, be sure to move this listing to the sub-adult table, and not rank him as an adult.

6. SELECT THE PERSON TO BE INTERVIEWED

Notice the chart in the middle of the Face Sheet. In the top row of this chart there are printed numbers from 1 to 6 for each size of family up to six adults.

Find the number in the top row which corresponds to the number of adults you listed in the dwelling unit—that is, the last or highest order number you used. (For this purpose, then, the number of adults includes the evacuated, hospitalized and dead.) The corresponding handwritten number in the bottom row is the rank order number of the individual you should interview.

Go back to your listing and pick out the one adult who has this rank order number. Circle this rank order number in the column where you made your original ranking, to designate the person you are to interview.

This procedure provides a scientific way of selecting the one individual whom you will interview. You will note that the handwritten numbers are different from sheet to sheet. They are deliberately varied in a random way to make sure that individuals are selected purely by chance.

ONLY THE PERSON SELECTED IN THIS MANNER IS TO BE INTERVIEWED. NO SUBSTITUTIONS CAN BE MADE, EXCEPT WHERE THIS PERSON IS NOW DEAD. SEE 8 BELOW ON PROCEDURES IN THESE INSTANCES.

Here is an example of an enumeration for a dwelling unit, with the chart from which to select the person to be interviewed.

Relation to Head	Sex M or F	Age	Rank Order #
Head	M	44	3
Head's wife	F	45	(2)
Wife's sister	F	50	1
Head's son	M	21	4

No. of adults in Household	1	2	3	4	5	6 or more
Interview person with Rank Order #	1	1	3	2	4	3

Four persons are listed, so you find the printed number "4" in the top row of the table. The written number below it happens to be a 2. This means you are to interview the person with rank number 2, so the number 2 is circled above to indicate that the wife of the head of the family is the designated respondent.

7. TRACE RESIDENTS OF DWELLING UNITS UNOCCUPIED BECAUSE OF THE TORNADO TO THEIR TEMPORARY RESIDENCES

If a dwelling unit assigned to you is destroyed or otherwise uninhabited because of the tornado, trace at least one of the adult former occupants of this dwelling unit to his present (temporary) place of residence. There will be a number of ways of tracking these people down--neighbors and mailmen may be able to tell you; relief agencies may have issued lists of the displaced and where they are to be found, etc. IF YOU NEED ANY HELP IN TRACING A HOUSEHOLD, REFER TO YOUR SUPERVISOR.

Once you have found an adult who lived in this dwelling unit before the tornado, proceed exactly as above to get from him the complete listing of the members of the household prior to the tornado. BE SURE THAT YOU DO NOT GET THE LISTING OF THE DWELLING UNIT WHERE THIS PERSON IS TEMPORARILY LIVING: YOU WANT THE LISTING FOR HIS PRE-TORNADO HOME (YOUR ASSIGNED DWELLING UNIT).

After you complete steps 2-6 above, you will know whom your designated respondent for this unoccupied dwelling unit is, and, if this person is not temporarily quartered with the person furnishing you the household enumeration, you can learn from him where your designated respondent is to be found. Proceed to this designated respondent and arrange an interview, as in 8.

IF AT ANY POINT IN THE TRACING PROCEDURE YOU FIND THAT CONTINUING TO WORK ON THAT ASSIGNED CASE WOULD TAKE YOU OUTSIDE OF THE AREA IN WHICH YOU ARE INTERVIEWING, TURN THE CASE BACK TO THE SUPERVISOR FOR REASSIGNMENT TO SOMEONE WHO CAN MORE CONVENIENTLY MAKE THE CALL. (In general, although you, personally, will not be expected to make all the follow-ups, as long as the persons being sought are still within the borders of White County or anywhere directly between White County and Little Rock they will be followed. Decision on whether to follow up cases that are more far-lying than this will be postponed pending determination of how many of them there are and how scattered they are.)

8. ARRANGE AN INTERVIEW WITH THE DESIGNATED RESPONDENT

After you have determined whom you are to interview in the household (your designated respondent), it is your job to locate that person and conduct an interview with him. Procedures will vary somewhat, depending on the status of the dwelling unit.

1. Your designated respondent is still living in the assigned dwelling unit:

   a. If the person in the dwelling unit who furnished you with the enumeration is your designated respondent, there is no problem. Merely start right in with the interview. In a few cases, you may have to arrange an appointment for a later time.

   b. If the person who gave you the enumeration is not the designated respondent, ask the person you are speaking to whether the designated respondent is at home.

      (1) If the designated respondent is at home, you can interview him, immediately, or, if necessary, arrange an appointment.

      (2) If the designated respondent is not at home, find out from the person you are speaking to when he is most likely to be found at home; if at all possible, arrange a definite appointment through the person you are talking to for a time that will be convenient for both you and the intended respondent.

2. Your designated respondent is not living in the assigned dwelling unit:

   a. If the designated respondent is temporarily living elsewhere, trace him to his current place of residence (with the limitation outlined in 7) and arrange an interview, as above.

   b. If the designated respondent is hospitalized, turn the case over to your supervisor to arrange permission to interview him in the hospital.

c. If the designated respondent is dead, record this information as the outcome of the call on which you learned this fact. (See 10 below for reporting calls.) THEN, SUBSTITUTE AS THE DESIGNATED RESPONDENT, another household member, as follows:

(1) If the dead designated household member had an even rank order # (2, 4, 6), substitute the adult with the next lower rank order number (1 for 2, 3 for 4, 5 for 6).

(2) If the dead designated household member had an odd rank # (1, 3, 5), substitute the adult with the next higher rank order number (2 for 1, 4 for 3, 6 for 5). If this dead person with an odd rank order # also has the highest rank order # used for the dwelling unit, uniformly substitute the person with rank order #1.

Then proceed with whichever preceding instructions apply to the new designated respondent.

If the person you are talking to wants to know why you can't interview him, you can explain that only certain people are to be interviewed and in this particular household you must interview an older woman or the youngest man, filling in the proper words to describe the person you need.

9. PERSIST UNTIL YOU OBTAIN INTERVIEWS WITH ALL OF YOUR DESIGNATED RESPONDENTS

Until or unless you are told otherwise by your supervisor, you are to continue working on the cases assigned to you until you have obtained an interview in every case. This means, primarily, that you may have to make a number of calls or visits to one or more dwelling units in search of an elusive respondent. REMEMBER THAT YOUR SUPERVISOR CAN GENERALLY ASSIST YOU IF THE PROBLEM IS ONE OF TRACING A RESPONDENT NO LONGER AT HIS FORMER DWELLING UNIT. Calls should, in general, be made at times when you can expect to find the respondent available on the basis of information you have gathered from people who told you of his whereabouts.

Do not give up a single interview without a genuine effort to find and interview the intended respondent. If a person is reluctant to be interviewed, remember that he cannot be substituted for, and each such person lost makes the sample less representative. Therefore, use every bit of ingenuity you possess to get the interview.

For instance: If he gives an alibi, try to overcome it.

If he is suspicious, explain our purposes. (The Field Director will brief you on the best and clearest explanations to make.)

Don't permit one person in a family to refuse for another one. Go back to the right person.

Persistence will enable you to get interviews with those who are difficult to find at home. Remember that checking with the neighbors about the hours they keep can save you waste calls.

Most people are cooperative, and the proportion who will refuse to be interviewed will be very low if you persist.

Turn back to your supervisor for further action the following exceptions to the rule that you keep working on your cases:

1. The designated respondent is now located outside the district in which you personally are interviewing. The supervisor will reassign the case to someone who can reach him more conveniently, or hold up the case, depending on how far away the person is now located.

2. The designated respondent is now hospitalized. The supervisor will reassign the case to an interviewer specializing in hospital clearances and interviews.

3. The designated respondent has once refused to give you the interview. The supervisor will discuss the problem with you and reassign it to some interviewer who seems likely to be more adapted to the particular situation. (For instance, some male respondents may be timid about talking to young women and vice versa; by reassigning to another interviewer, the refusal may be converted to an interview.)

4. You have been completely unable to find any trace of the designated respondent's present location. The supervisor will reassign the case to a trouble-shooter for further detective work.

As the work progresses, the supervisor may add further types of cases to this list.

10. <u>ENTER THE RESULTS OF YOUR CALLS ON THE FACE SHEET</u>

There is a chart on the bottom of the first page of the Face Sheet with space for recording your first six calls. (As this space is exhausted, use the back of the first page for recording additional calls.)

For each call you make, you are to make four entries: date, hour, your name, and the results (outcome) of the call. Except for a reminder that, in entering the hour of the call, you should record both the hour and the letters "AM" or "PM," the first three need no explanation.

In the final space, "Results and Remarks", enter:

1. The outcome of the call, using these standard abbreviations:

   TV.....Dwelling unit is now uninhabited because of the tornado

   OV.....Dwelling unit is now and was vacant (uninhabited) prior to the tornado. (Such cases should be turned back to your supervisor as closed.)

   NAH....No one is home, other than TV or V, or you don't know whether it is TV or V

DE.....You have learned that, although someone lives in this du, the designated respondent has been evacuated to some other place of residence than the place at which you are calling

DH.....The designated respondent is hospitalized

DF.....The designated respondent was a fatality of the tornado (notations on all succeeding calls will be interpreted as applying to the newly-designated respondent)

DNAH...The designated respondent lives at the place at which you are calling but he is not at home at the time of your call

DR.....You are talking to the designated respondent, but he refused to give the interview

OR.....Someone other than the designated respondent refuses you access to the respondent or information necessary to trace the respondent

INT....Interview obtained with designated respondent

For any outcome not covered by this list, write it out in full.

2. Except where an interview was obtained, all information that will be helpful to you or to some one else in making later calls should be recorded under "Results." These will include information about where the respondent may be found, times when he is generally available, exactly why the respondent refused the interview, who other people who blocked access to the respondent were and why they created difficulties, appointment times and so forth. You will not always be making the succeeding calls, so record this information fully in order to assist the interviewer who follows up the case.

11. IF YOU DISCOVER ERRORS IN THE ORIGINAL LISTING

The person who did the original listing of dwelling units may occasionally have made an error in listing.

Where you can find no dwelling unit or remains of a dwelling unit which matches the description and location on the Face Sheet, notify your supervisor for further instructions.

The lister may also have listed a certain place as one dwelling unit, which turns out to contain more than one dwelling unit that answers to the description given. For instance, a structure that looks like a one-family house may turn out, when you visit it, to be permanently divided into two or more dwelling units. Or a farm listed as one dwelling unit may have additional dwelling units covered by it, as, for instance, small shacks for share-croppers, or living quarters in the barn.

If you find such additional dwelling units:

1. Select any one of them for the dwelling unit assigned to you. Modify the description on the Face Sheet referring to this dwelling unit, so that it describes only one of the dwelling units (e.g., lower half of house at that location; main farmhouse; etc.) This case is assigned to you and you proceed as usual.

2. Report to the supervisor the number and exact description of all of the additional dwelling units not covered by the Face Sheet you have. The supervisor will prepare Face Sheets for each of these additional units, assigning case numbers to them, and they will then be assigned to an interviewer (probably you, since they are in your territory) to begin work on them.

12. TAKE CARE OF YOUR FACE SHEETS

Keep your original Face Sheets in good condition. They constitute a permanent record of the sample, and are essential to the analysis of the results of the survey. You are responsible for all Face Sheets you have received.

Note, too, that the second page of the Face Sheet contains the factual items to be obtained from your respondent after you have interviewed him.

Survey 308 Disaster Project

MASTER QUESTIONNAIRE FOR REGULAR RESPONDENTS

1. Will you tell me all about what happened to you in the storm? (Tell me your story of what happened in the storm.) (Tell me everything you know about the storm.)

   A. How did you first know about the tornado?
   B. Where were you?
   C. What were you doing?
   D. Who was with you?

2. Were there times during the storm when you didn't know what was happening to your family?

   IF YES: A. How long was it before you found out what was happening to them?
   B. How did this make you feel—not knowing what was happening?

3. Did you have any idea that there was (going to be) a tornado?

   IF YES: A. How did you know that there was going to be one?
   B. What did you (see) (hear)? When was that?
   C. What did you do then?

4. What did you think was going to happen when you first knew that there was (going to be) a tornado?

   A. What did you think would happen to you?
   B. " " " " " " to your family and friends?
   C. " " " " " " to home and things you own?
   D. " " " " " " to the neighborhood?
   E. " " " " " " to the town as a whole?

5. What did you do when you realized something was wrong?

6. Were you, yourself, in any danger?

   IF YES: A. What kind of danger were you in?

7. Did you, yourself, get hurt in any way?

   IF YES: A. When did you find out about this?
   B. How were you hurt? (Kind, Extent and Cause)
   C. When did this happen?

8. Did any of your family get hurt? (or lose their life?)

   IF YES: A. Who?
   B. How were they hurt?
   C. When did this happen?
   D. When did you find out about this?

9. Were any of your other relatives or close friends hurt? (or lose their life?)

IF YES: A. Who were they?
B. How were they hurt?

ASK FOR EACH:
C. When did this happen?
D. When did you find out about this?

10. Did you, yourself, see anyone (else) get hurt?

IF YES: A. Who were they?
B. How were they hurt?
C. How did you feel when you saw this?

11. Did the storm do anything to your home? How about your other belongings?

IF YES: A. How was it damaged?
B. When did it happen?
C. When did you find out about it?
D. How did you feel?

12. ASK IF RESPONDENT WAS AWAY FROM HOME

A. Were you worried about what might happen to your home and the things you owned? How did this make you feel—not knowing what was happening?

13. When the storm (tornado) struck, what did you do?

A. Why do you suppose you did that?

14. How did you feel when the storm struck?

A. How did you feel when _____ happened?
PROBE EPISODES CITED BY RESPONDENT

15. What were other people doing? Saying?

A. Who were they? PROBE FOR KIND OR TYPE OF PEOPLE
B. What about your family? Your neighbors? Others?
C. How did that make you feel?

16. How did the children act?

A. What did they do?
B. What did they say?
C. How did they take it? PROBE FULLY

17. Did you, yourself, see any people who seemed to lose their heads (go to pieces) and need to be taken care of?

IF YES: A. How did they act?
B. Which people were like this?
C. What would you say are some of the reasons why they went to pieces when other people didn't?

IF NO: D. Well, did you hear of any people who lost their heads and needed to be taken care of?
IF YES:
E. What kind of people were like this?
F. Why do you think they went to pieces?

18. Did you, yourself, see anything wrong going on--like people going into houses and taking things? (Things that didn't belong to them?)

IF YES: A. What did you see? When did you see this?
B. Who was it that did this?
C. Why do you think they did this?
D. Did you see anything else like this at any time?

IF NO: E. Did you hear of any looting or stealing and things like that going on?

IF YES: F. What kind of people did things like that?

19. Have there been many outsiders in the (town) (neighborhood)?

A. Who?
B. What were they doing?
C. How do you feel about this?

20. Now what about the things you do every day--how were they most upset by the storm?

21. After the tornado:

A. Did you get enough to eat?
B. Did you have enough good drinking water?
C. Did you have enough water for bathing and washing? For livestock?
D. Did you have a place to sleep?
E. Did you have enough clothes?
F. Did your telephone work?
G. Did your gas work?
H. Did your lights work?
I. Were you able to get necessary medical care?
J. Did you have a way of getting around (transportation) when you needed it?

IF NO, ASK FOR EACH:

K. Was this a serious problem or didn't it bother you much?

22. What sort of problems (troubles) did the tornado raise for you?

A. For the town as a whole?
B. For the neighborhood?
C. What did you see being done for people who were hit by the tornado?
D. From what you saw, was everything possible done for them, or could more have been done?

IF MORE COULD HAVE BEEN DONE:
E. What could have been done that wasn't done?
F. Who should have seen that this was done?
G. What do you suppose kept them from doing this?

23. Which of the problems (difficulties) were handled particularly well?

A. Who deserves credit for this?

24. Which problems were <u>not</u> handled so well?

A. Why was this?
B. Who is to (blame) for this?

25. After the storm, where did you get most of your information about what was going on?

A. Could you find out everything you wanted to know?
B. Was there anything that was hard to find out about? What?
C. Was the information you got usually true or not?
IF NOT:
D. How did you find it was wrong?

26. What were some of the stories going around?

A. How did you hear them?
B. Who told you?
C. Which ones did you believe?
D. Did you tell them to anyone else?
E. Who did you tell this to?

F. Did you hear any stories about how much <u>damage</u> was done by the storm?
G. What did you hear?

H. How about the way the <u>relief work</u> was being handled?
I. What did you hear?

27. As far as you know, how much damage was caused by the storm?

A. As you see it, why did it cause as much damage as it did?
B. Why do you suppose some houses were so hard hit and others were hardly damaged? (Why do you suppose some houses were hit and others weren't?)

28. When did you find out that the storm was as big as it was?

    A. When did you find out that other towns had been hit?
    B. What did you find out?
    C. How did you find out?
    D. How did you feel when you found out about this?

29. Did you have any idea what the tornado would be like or did it turn out to be different from what you expected?

    IF DIFFERENT:
    A. How was it different?
    B. Better or worse?
    C. In what ways was it better (or worse)?
    IF NOT DIFFERENT:
    D. How did you know what to expect?

30. After the storm, did you have any trouble with your health—any illness of any kind? (Did you feel sick in any way?) (Did anything happen to you inside?)

    IF YES: A. What was wrong?
    B. When did you first notice that?
    C. Is it still bothering you?
    IF NO: When did it stop?
    Did you ever have anything like this before the storm?
    IF YES: When was that?
    D. Have you had any other trouble with your health since the storm? What? Any aches and pains? (Nausea? Vomiting? Headache? Nervousness? Loss of appetite? Any trouble with your bowels? Pains in your heart? Muscles? Stomach? Skin?)
    E. Did (do) you find it harder to keep your mind on things? Why was (is) that?
    F. Have you had any dreams or nightmares? (What did you dream?

31. Have you ever gone through anything like this before? (Have you ever had any experiences like this before?)

    IF YES: A. When was that?
    B. What happened to you then? (Would you tell me a little more about what happened then?)
    C. How did you feel at that time?
    IF NO: D. Have you ever gone through anything like a fire, flood, car accident, explosion, etc.?

32. In general, how did people here in town (the neighborhood) act?

    A. What sort of people did a specially good job?
    B. Why is that, do you suppose?
    C. What sort (kinds) of people didn't do as much as they should have?
    D. Why is that, do you suppose?
    E. What sort of people could have done more?
    F. Who were they?
    G. What kinds of people made it hard to get things done?

33. How about the way different individuals (persons) acted during the storm...

A. Which ones turned out to be the "good people to have around" in an emergency?
B. What are they like?
C. Why were they better, do you suppose?
D. What did they do that helped?

E. Which ones turned out to be the best leaders?
F. What are they like?
G. What made them good leaders?
H. What did they do that helped?
I. Could you tell me a little more about _____? NAME OR TYPE OF PERSON MENTIONED

34. Did you happen to take part in any rescue or relief work?

A. What did you do?
B. How did you happen to get into that?
C. Have you ever done anything like this before? What? When?
D. How much time did you spend in this?
E. When did you stop?
F. What were your reasons for stopping?

35. When things quieted down, did you find it harder to do your regular work than usual?

A. What made it harder?

B. Did you take any time off from work then?
C. Howmuch time did you take off?
D. What were your reasons for taking time off?

36. Do you still think about the storm? What comes to mind? What do you think?

A. Do you still talk about it?
B. Who do you talk to?
C. What do you talk about?

37. What was the worst thing about the storm for you?

A. Why was that?
B. What other things were bad? Anything else?

38. During the storm what (frightened) (scared) (upset) you most? USE RESPONDENT'S WORDS

A. Anything else?

39. When did you first begin to feel that the "worst was over?"

A. What gave you that feeling?

40. What, do you suppose, kept you going through the whole thing? PROBE FULLY

41. Do you feel you were changed in any way because of all this? In what ways? Any other ways?

    A. Do you feel that you yourself have changed in any way? What ways?
    B. Do you feel you have changed any of your ideas? What?
    C. Do you think there is anything you would do different as a result of the storm? What would you do different?

    D. Do you feel the town (community life) has changed in any way? How? In the future?

42. Have you gotten to know anybody (some people) better since the tornado?

    IF YES: A. Who?
    B. How did this happen?

43. Do you know what you are going to do now? What?

    A. What have you done?
    B. Have you thought about what you are going to do?

44. Do you think you learned anything that would be helpful to you or to others in case of another disaster like this one?

NATIONAL OPINION RESEARCH CENTER
University of Chicago

Survey 308 RS--Face Sheets

Full description and location of DU:

Case #:_____

Township:_____

Nearest Town:_____ 4-

Sample Class: Town..... 5-1
Open Country..... 2

Segment #:_____ 6-

I. Would you please tell me how many adults, 18 years of age or over, live in this household? (LIST AGE, SEX AND RELATION TO FAMILY HEAD FOR EACH ADULT.)

Relation to Head	Sex: M or F	Age	Rank Order #

II. Are there any children or persons under eighteen years of age living here with you? (LIST SAME DATA FOR EACH SUB-ADULT.) 7-

Relation to Head	Sex: M or F	Age

8-
9-
10-
11-
12-
13-

III. Rank all adults from oldest to youngest in last column of Table I. Select correct person for interview by reference to following table. Circle, in the last column of Table I, the Rank Order # of person selected for interview.

No. of adults in Household	1	2	3	4	5	6 or more
Interview person with Rank Order #	1	2	1	3	3	2

IV. Results of each call. (If more than six calls are made continue on back of this sheet.)

CALL	Date	Time, inc. AM or PM	Interviewer	Results and Remarks
FIRST				
SECOND				
THIRD				
FOURTH				
FIFTH				
SIXTH				

1b-

Survey 308-FS--Factual Data Sheet

1. What was the name of the last school you attended?

   What was the last grade or year you completed in that school?

Completed college	15-1
Some college	2
Completed high school	3
Some high school	4
Completed grammar school	5
Some grammar school	6
No formal education	7

2. Are you married at present?

Single	16-1
Widowed	2
Divorced, separated	3
Married	4

3. A. In what country were you born?

   17-

   B. In what country was your father born?

   18-

4. How often do you go to church or religious services?

Once a week or more	19-1
1-3 times a month	2
Less than once a month	3
Never	4

5. What religion do you consider yourself?

Protestant	20-5
Catholic	6
Jewish	7
Other	8
None	9

6. Did you serve in any branch of the Armed Forces during World War II?

Yes	21-2*
No	1

   *A. (IF "YES") Were you ever in actual combat?

Yes	2
No	3
Don't know	4

7. How long have you lived in this town?

Less than a year	22-1
1-3 years	2
3-5 years	3
5-10 years	4
10-20 years	5
20 years and over	6

8. How long have you been living in this house?

Less than a year	23-1
1-3 years	2
3-5 years	3
5-10 years	4
10-20 years	5
20 years and over	6

9. Do you (does your family) own or rent the place where you live?

Owns	24-7
Rents	8

10. Who is the main earner in your family?

Respondent..... 25-1*
Other..... 2**

*IF RESPONDENT IS MAIN EARNER, ASK A.

**IF RESPONDENT IS NOT MAIN EARNER, ASK A AND B.

A. What kind of work does the main earner do?

_____ (Job)

_____ (Industry) 26-

B. Do you work too? What kind of work do you do?

_____ (Job)

_____ (Industry) 27-

11. Would you tell me in which one of these general groups your own total family income falls—before taxes? (HAND RESPONDENT CARD) (We need this information just to make sure we are getting a good sample.)

A.	Under $500.....	28-1
B.	$500 up to $1,000.....	2
C.	$1,000 up to $2,000.....	3
D.	$2,000 up to $3,000.....	4
E.	$3,000 up to $4,000.....	5
F.	$4,000 up to $5,000.....	6
G.	$5,000 up to $10,000.....	7
H.	$10,000 and over.....	8
	Refused.....	9

12. RACE OF RESPONDENT:

White.....	29-3
Negro.....	4
Other.....	5

13. DATE OF INTERVIEW:

30-1-

14. INTERVIEWER'S SIGNATURE:

32-3-

15. INTERVIEWER'S IMPRESSIONS OF RESPONDENT (Personality, attitude toward interview, etc.) (CONTINUE ON BACK OF THIS PAGE.)

Indicate whether or not the respondent's home had EACH of the following items immediately preceding the tornado. (You need not ask about items the respondent's possession of which is obvious to you, but DO NOT FORGET to circle the proper code for each of the items any how. Ask the respondent directly whenever there is any doubt.

16.

A. Mechanical (electrical) refrigeration
Had.....36-1
Did not have..... -2

B. Telephone
Had.....37-1
Did not have..... -2

C. Radio
Had.....38-1
Did not have..... -2

D. Indoor toilet
Had.....39-1
Did not have..... -2

E. Electric lights
Had.....42-1
Did not have..... -2

F. Gas (for stove or refrigerator)
Had.....43-1
Did not have..... -2

G. Running water in the houses
Had.....44-1
Did not have..... -2

17. Do you own a car or truck?
Yes.....40-1
No..... -2

18. Interviewer's estimate of physical destruction

If the interviewer has actually seen the respondent's house and the general area, he should make the rating himself. If the interviewer has not seen the house, he should ask the respondent to help with the rating. Circle one (and only one) code for each of the two rating scales. Refer to period immediately following the tornado!

A. RESPONDENT'S RESIDENCE
Completely destroyed.....41-1
Damaged: Unlivable but repairable..... -2
Damaged: Livable without repairs.... -3
No damage..... -4

B. IMMEDIATE AREA (½ block on all sides of house)
All or most structures completely destroyed.....45-1
Some, but fewer than half, completely destroyed..... -2
Minor damage to over half but none completely destroyed.. -3
Minor damage to less than half the structures..... -4
No damage in area..... -5
No other structures in area.. -6

Survey 308

Disaster Project

MASTER QUESTIONNAIRE FOR SPECIAL INFORMANTS

INDIVIDUAL ACTIONS

1. Would you tell me what you did? (Tell me what happened?)

2. How did you first hear about it?
   A. Where were you?
   B. What were your doing?

3. What did you think of when you first heard about it?

4. What did you do then?

5. What did you do next (FOLLOW SEQUENCE)

6. A. Who did you get in touch with first? Then who? (ESTABLISH ORDER)
   FOR EACH PERSON CONTACTED: (1) How did you get in touch with him?
   (2) Why did you get in touch with him?
   B. Were there any people you couldn't reach?
   C. Who were they?
   D. Why couldn't you reach them?

7. Did you have any idea what the disaster would be like or was it different from what you expected?
   IF DIFFERENT: A. How was it different?
   B. Was it better or worse than you expected?
   C. In what ways was it better or worse?

8. Have you ever had any experience like this before?
   IF YES: A. When was that?
   B. What happened then?
   C. How did that experience compare with this one?

ORGANIZATIONAL PLANS

9. What did your organization (USE NAME) do in connection with the tornado?

10. Did your organization have any plans for dealing with an emergency like this?
    IF YES: A. What were these plans?
    B. Who prepared these plans?
    C. Do you feel that the plans worked out the way they were (expected) (supposed) to?
    IF NO: D. How did the actual operation differ from the plans? (GET SPECIFIC DETAILS)
    E. Why didn't the plans work out the way they were (expected) (supposed) to?

11. Had the plans been used before?
    IF YES: A. When was that?
            B. How did they work out then?
            C. How did they work out this time? (HAVE RESPONDENTS COMPARE EXECUTION OF THE PLANS IN THE TWO OR MORE EVENTS)

12. Do you have any formal working arrangements (agreements) with other agencies or organizations?
    A. What were they?
    B. How did they work out?

13. Did you have any informal working arrangements (understandings) with other agencies or organizations?
    A. What were they?
    B. How did they work out?

14. Has your organization ever had any experience like this before?
    A. When was that?
    B. Can you tell me what happened then?

PERSONNEL, FACILITIES, TRAINING

15. What facilities did you have available for dealing with the emergency?
    A. Personnel: (1) How many, (2) What kind?
    B. Equipment: (1) How much, (2) What type?

16. Were your facilities adequate for handling the problems that arose?
    A. Which ones were adequate?
    B. Which ones were inadequate?
    C. FOR THOSE THAT WERE INADEQUATE: In what way were they inadequate?

17. Did you have any volunteers working for you?
    A. How did you get them?
    B. Where did you get them?
    C. What did you have them do?
    D. How did it work out?
    E. Did you have any problems in using them?
       IF YES: F. What were the problems?

18. Have (you) (your organization) ever had any special training for this kind of work?
    IF YES: A. What was this training? (GET DETAILS)
            B. When was this training given?
            C. Do you think this training helped?
               IF YES: D. In what ways?
               IF NO: E. Why didn't it help?
    IF NO: F. What kind of training do you think would have helped? (Why?)

PROBLEMS

19. What were your major problems? (e.g., lack of communications, lack of utilities, lack of supplies, sightseerers, traffic, rumors, migrants, looting, etc.)
ASK FOR EACH: A. How long did it last?
B. What was done about it?
C. Who did this?
D. How was this decided?
E. How effective was this action?

20. Did any problems arise in dealing with various kinds of people? (What?) (When?)

21. Were there any kinds of people that were difficult to deal with? (What kind?)

22. What would you say was your worst problem?
A. Why was it the worst?

23. Were any of your buildings or equipment destroyed or damaged?
A. What was damaged?
B. How was it damaged?
C. Did this raise any problems for you? (What?)

24. Were any of your people killed or injured?
A. What position did they hold?
B. How did this affect your organization?

25. What things hindered your work?
A. Why was that?

26. Were there any people who were expecially good to have around in an emergency like this? (Who?) (Why?)

27. Do you think you learned anything that would be helpful to you or to others in case of another disaster like this one? (What?)

NATIONAL OPINION RESEARCH CENTER
Survey 306
Factual Data Sheet for Special Informants

1. INTERVIEWER'S NAME	5. AGENCY, ORGANIZATION, OR MUNICIPALITY WITH WHICH RESPONDENT IS AFFILIATED
2. RESPONDENT'S NAME	6. OFFICIAL POSITION OF RESPONDENT IN AGENCY, ETC.
3. TIME AND DATE OF INTERVIEW	7. USUAL LOCATION OF AGENCY, ETC. (If different from location during disaster operations).
4. PLACE OF INTERVIEW (Home or office; if office, in what building or town)	8. USUAL FUNCTIONS OF AGENCY, ETC. (Particularly if normal functions are different from functions it carried on in disaster operations)

9. DEGREE OF INVOLVEMENT OF AGENCY, ETC. IN DISASTER OPERATIONS (Show nature and degree of involvement)

10. DEGREE OF INVOLVEMENT OF RESPONDENT IN DISASTER OPERATIONS (Show nature and degree of involvement; also list any non-official role participation.)

11. REASON FOR INTERVIEWING RESPONDENT (Examples: high involvement of respondent or his agency, etc., or both in disaster operations; also informal referrals. For informal referrals, list who and how many made referrals, and content of referrals.

12. PRESENT OCCUPATION (Get job description)

13. LENGTH OF TIME IN PRESENT JOB OR POSITION

14. PREVIOUS OCCUPATIONAL HISTORY

15. LENGTH OF TIME IN COMMUNITY

16. AGE

17. SEX

18. RELIGION

19. SERVICE IN ARMED FORCES

    A. Branch

    B. Combat (Yes) (No)

20. RACE

The following article was published in the Searcy Daily Citizen on April 7, 1952, and in the White County Citizen on April 9, 1952

DISASTER RESEARCH TEAM INTERVIEWING WHITE COUNTIANS ABOUT TORNADO

The National Opinion Research Center has sent its specially-trained Disaster Research Team to White County to interview persons and learn about their experiences in the tornado. The team, composed of 26 members, will be interviewing several hundred residents in and around communities of Searcy, Bald Knob, Judsonia, Kensett, and Donipham during the next two or three weeks.

The purpose of these interviews is to learn from the people who went through the tornado how to plan more effectively for meeting the problems which disasters or other emergencies bring. The knowledge obtained from the residents of White County will be of great help to other people and communities who may have to face similar emergencies in the future.

The study is being conducted by the National Opinion Research Center under contract with the Department of Defense and the National Research Council. The findings will be used by all government agencies charged with planning to meet the problems posed by either a peacetime or wartime disaster.

The National Opinion Research Center, with offices in Chicago and New York, is a non-profit research organization which specializes in studies of attitudes and human behavior. It makes these studies at cost as a public service for various government agencies and other non-profit organizations. Among recent or current clients for research are the United States Office of Education, the United States Public Health Service, the United States Air Force Medical Corps, the National Council of Churches of Christ in America, the American Library Association, the American Cancer Society, the National Tuberculosis Association, the National Collegiate Athletic Association.

The study now being conducted in White County will be the largest disaster study ever conducted in the United States. The Disaster Research Team, established in 1950, has previously made smaller-scale studies of several disasters throughout the country. Several of the more recent disaster studies include the West Frankfort, Ill., mine disaster; the three airplane crashes in Elizabeth, N. J.; a series of house explosions in Brighton, N. Y.; and an airplane crash at an airshow in Flagler, Colo.

The field director for the Disaster Research Team is Charles E. Fritz of Chicago. The assistant directors are Jack J. Feldman, Raymond L. Gorden, and Miss Margaret L. McDonald. Other members of the team are advanced university students, housewives, and teachers from Chicago and nearby communities who had special training in interviewing.

Over one hundred residents of White County have already been interviewed by members of the team. "We are sincerely grateful for all the help which the people of White County are giving us in our study," Mr. Fritz said. "In all of our experience in interviewing people throughout the country, we have never met so many friendly and hospitable people. Everyone we have talked to seems to realize the great importance of this study for our national welfare. I would like to thank everyone for their great kindness and cooperation in making this study possible."

THANK YOU FOR YOUR HELP!

We of the National Opinion Research Center and your interviewer both want to thank you for the help you have given us. The knowledge which we have gained in talking with you about your experiences in the tornado will be of great value to other people who may have to face similar emergencies in the future.

Perhaps you would like to have a written statement concerning some of the questions that people often ask about the study we are doing.

WHY IS THIS STUDY BEING MADE?

The purpose of this study is to get a true picture of what happens to people in a disaster, so that more effective plans can be made for meeting the problems which emergencies bring. The knowledge obtained from you and other residents of White County will be used in making plans for disaster control throughout the United States.

WHO IS SPONSORING THIS STUDY OF THE TORNADO?

The National Opinion Research Center is making this study under contract with the department of Defense and the National Research Council. The findings will be used by all government agencies charged with planning to meet the problems posed by either a peacetime or wartime disaster.

WHAT IS THE NATIONAL OPINION RESEARCH CENTER?

The National Opinion Research Center is a non-profit organization that makes surveys of public opinion and attitudes. We have offices in Chicago and New York, and maintain a staff of 200 interviewers throughout the United States. These studies are made at cost as a public service for various government agencies and other non-profit organizations. We have conducted research for the United States Public Health Service, the United States Air Force Medical Corps, the National Council of Churches of Christ in America, the United States Office of Education, the American Cancer Society, the National Tuberculosis Association, the American Library Association, and the National Collegiate Athletic Association.

WHO ARE THE INTERVIEWERS?

The interviewers working on this study are professional research people who have had special training in interviewing. They are selected for the job because they are easy to talk to. The statements you make will not be revealed to anyone by the interviewer or by the organization. Each interviewer carries an identification card signed by the Director of the Center.

HOW WILL THE THINGS I SAY BE REPORTED?

Your answers and statements will be strictly confidential. Your name or other identification is never used. Only summaries of statements will be published—such as, "one person out of ten reported that . . . " We are using tape recorders because we want to have a complete and accurate record of what you and other residents have to say.

HOW CAN I FIND OUT MORE ABOUT THIS STUDY?

If you have any other questions, we will be glad to answer them for you. Please call Mr. Charles E. Fritz, the field director, or Mr. Raymond L. Gorden, the assistant field director, telephone 426 in Searcy. If you wish to talk to us in person, we have our office in Room 16 at the Music Building of Harding College in Searcy.

Appendix A-11

Tornado Information Disseminated by the American Red Cross

TORNADO INFORMATION DISSEMINATED BY THE AMERICAN RED CROSS

Tornadoes almost always travel from southwest toward the northeast, the strongest winds and the greatest damage usually occurring in the eastern sector of the storm. Because of unequal air pressure associated with these storms, all but the most substantially built buildings tend to explode and the terrific wind velocity whirls the debris up and away to the northeast, the debris becoming deadly missles contributing to the destructive impact of the storm.

The principal danger in a basement or cellar is from falling debris. This hazard can be minimized by taking refuge in the southwest corner. The only absolute safety is offered in a storm cellar with a substantial roof.

In rural areas many people use a special cellar that serves the double purpose of affording shelter and protecting stored foods. The cellar should be built immediately to the southwest of the house and easy access is of paramount importance.

Briefly summarized below are the prime considerations in selecting a site and constructing a cellar.

LOCATION--This is extremely important. It should be near the southwest corner of the house, but not so close that falling walls would block the entrance or the occupants be roasted should fire break out following the destruction of the adjacent buildings. Entrance to the cellar should face the northeast.

MATERIALS--Reinforced concrete has advantages to compensate for the additional cost, but split logs or two inch planks treated with creosote and covered with tar paper will be satisfactory for walls and roof. Concrete block, hollow tile or brick may be used for walls. The roof should be covered with at least three feet of dirt, packed and sloped to divert surface water.

SIZE--This depends on the number of persons to be accommodated. From a safety standpoint, a cellar 8'x10' and 7' high will accommodate most families for the short duration of the storm.

DRAINAGE--The floor should slope to a drainage outlet. Use a tile drain to the outside in case of sloping ground, if not, to a dry well.

VENTILATION--There should be a vertical ventilating shaft and there should be a chute two feet square which will serve as an escape hatch. This chute should be equipped with an insulated sliding door. The floor may be paved or a heavy wood grating from heavy slats installed to facilitate circulation of air.

DOORS—These should be of heavy wood construction, hinged to open inward and held closed by a heavy pivoted wood bar.

STORED EQUIPMENT—Emergency equipment such as a shovel, flashlight, lantern, crowbar, hammer, saw, axe, screwdriver and pliers should be stored permanently in the cellar. These tools will more than pay for themselves if all escapes become blocked. They can be greased to prevent rusting.

CAUTION—Tornado cellars should not be connected in any way with house drains, cesspools, or sewer or gas pipes. This could become extremely dangerous if gas, smoke or large amount of water are present.

WHERE TORNADOES CAN OCCUR—Any place in the United States at any time of year. They strike most frequently in midwestern, southern, and central states from March through September.

HOW OFTEN DO THEY OCCUR—Records show the average number of days with tornadoes varies from seven a year (Kansas) to one in 70 years (Nevada). The national average is 142 tornadoes a year.

HOW TO RECOGNIZE A TORNADO—Usually seen as funnel-shaped cloud, spinning rapidly, extending earthward from a thundercloud. Close by, it sounds like the roar of many airplanes.

TORNADO "WEATHER"—Hot, sticky days, southerly winds, and ominous sky. However, many such days occur without tornadoes.

CLOUDS—Familiar thunderstorm clouds are present. An hour or two before a tornado, topsy-turvy clouds appear, bulging down instead of up. They often have a greenish-black color.

PRECIPITATION—Rain, frequently hail, preceding the tornado, with a heavy downpour after it has passed.

TIME OF DAY—Mostly between 3 and 6 P.M., but they have occurred at all hours.

DIRECTION OF TRAVEL—Nearly always from southwest to northeast.

SPEED OF TRAVEL—Average is 25 to 40 miles per hour, but they have varied from 5 to 139 miles per hour.

LENGTH OF PATH—Usually 10 to 40 miles, but it may extend 300 miles.

WIDTH OF PATH—300 to 400 yards, but tornadoes have cut swaths over a mile in width.

WIND SPEED INSIDE CORE—Estimated as high as 500 miles per hour.

CAUSES OF DESTRUCTION--Violent winds that create a serious hazard from objects blown through the air. Differences in air pressure that can life automobiles and cause buildings to collapse.

TORNADO SAFETY RULES

Knowing what to do in case of a tornado may mean the difference between life and death.

When time permits, go to a storm cellar, cave or underground excavation, which should have an air outlet to help equalize the air pressure.

IN OPEN COUNTRY--Move at right angles to the tornado's path. Go to the west if possible. An automobile can often outrun a tornado. If there is not time to escape, lie flat in the nearest depression of the road, field or street. If on a river bluff, the side of the hill facing the tornado is often safer than that away from the tornado.

IN CITY OR TOWN--Seek inside shelter, preferably in a structural steel building.

DO NOT APPROACH WINDOWS--In homes, the southwest basement corner offers greater safety in a frame house than in a brick or stone house. If time permits, electricity and fuel lines should be shut off. Windows on the north and east sides of the house may also be opened to help reduce damage to the building. Standing against the inside wall on a lower floor of an office building offers some protection.

IN SCHOOLS--In congested city areas, follow procedure for office building. In rural districts, remove children and teachers to a ravine or ditch, which will offer more protection than a school building.

IN FACTORIES AND INDUSTRIAL PLANTS--On receiving a tornado warning, post a lookout to warn of the tornado's approach. Advance preparation should be made for shutting off electrical circuits and fuel lines if the tornado approaches the plant. Workers should be moved to sections of the plant offering the greatest protection.

GENERAL--Do not become excited. People have been killed by running into streets and by turning back into the path of a tornado.

The preceding information was published in the White County (Arkansas) Citizen, April 2, 1952.

HUMAN REACTIONS IN DISASTER SITUATIONS

VOLUME III

REPORTS ON OTHER FIELD INVESTIGATIONS AND STUDIES

APPENDIX B

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Appendix B-1

Report on an Airshow Plane Crash in
Flagler, Colorado, September 15, 1951

REPORT ON AN AIRSHOW PLANE CRASH IN FLAGLER, COLORADO, SEPTEMBER 15, 1951

INTRODUCTION

At approximately 2:40 P. M. on September 15, 1951, a stunting airplane crashed into a crowd of spectators at an airshow in the small community of Flagler, Colorado. The crash killed 20 persons--including 13 children and seven adults (three women and four men)--and injured approximately 30 others. Most of the victims were killed instantly or died within a few hours after the accident. The pilot of the airplane was among those who were killed. A Civil Aeronautics Board report on the accident, released three and one-half months later, blamed "pilot error" for the accident.*

The following report is concerned with the social and psychological effects of the airplane crash on the residents of the community. Three members of the National Opinion Research Center's Disaster Research Team arrived in the community three days following the crash and conducted interviews with the residents during the five succeeding days. During this time, a total of 42 tape-recorded interviews, averaging approximately two hours in length, were obtained. The respondents who were interviewed included persons with all degrees of involvement in the disaster--e.g., persons who were seriously injured, persons who lost family members, spectators who had relatives in the crash area, spectators who had friends in the crash area, and outsiders who witnessed the event and had minimal identification with the community residents. In addition, a special effort was made to interview persons who took a leadership role or who were in a position to give special information concerning the relief work and the behavior of the populace.

The material which follows is based upon an analysis of the interview data, the reports of the team members who conducted the investigation, and extensive newspaper accounts.

The Community Affected

Flagler is a small, isolated farming community, located in the southeastern part of Colorado, near the Kansas-Colorado boundary. In 1950, the total population was 793 persons. At the time of the crash, the population of the city was approximately 650. Inclusion of the persons living on surrounding farms would bring the total population to about 2,000. The nearest large city is Denver, which is located about 120 miles east of Flagler.

Agriculture and stock raising are the principal industries of the area. The town itself is a collection and distribution center for wheat and barley crops produced in the area and for the cattle and sheep which are sent to market.

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* Associated Press news release, January 3, 1952.

Since 1939 or 1940 the community has become quite prosperous, sharing in the general agricultural boom of the war and postwar years.

Most of the people who live in the community are employed in the service industries or are retired farmers and businessmen. The businesses include several dry goods stores, an implement store, a hardware store, a drugstore, a building and construction agency, a restaurant, a bank, a small movie theater, a newspaper, a Chevrolet and Ford auto agency, and a tavern. Unusual for a town of this size is a small, but fairly well-equipped hospital of 12 beds. It is staffed by the two physicians in the community and three regularly-employed nurses.

The population is composed predominantly of old-generation, Protestant, whites. There are no Negroes or other racial minorities in the community. The religious composition of the community is overwhelmingly Protestant. There are three Protestant churches and their membership roughly follows the socio-economic distinctions made in the community. The Congregationalist church contains most of the higher income families and most of the formal leaders of the community. There is a German Lutheran Church which has a mixed congregation, but is predominantly composed of middle class persons, and a Baptist Church composed of lower middle and some lower class families. There is a small Roman Catholic mission church composed of about 20 families, which is administered by a priest who lives in another town about 30 miles away. The Catholic Church is mainly comprised of lower income families in the community.

Although socio-economic distinctions are made in the community, there appear to be no real class cleavages. The people are bound together closely by kinship and friendship ties. Nearly everybody in the community knows all the other residents, and they generally refer to one another by their first names. There are no addresses on any of the houses, but the investigators found that nearly all the residents could direct them to nearly every family in the town.

Unlike many small rural communities, Flagler has a large number of young adults (persons in the age group 21-35 years). The prosperity of the community has apparently influenced many of the young men to stay in the community and take over their fathers' jobs. A considerable number of others have returned to the community after getting professional training or working in other cities. Most of the professional people (e.g., a lawyer, a doctor, several nurses, and school teachers, and a dentist) grew up in the community and returned after getting their training. Similarly, many of the businesses in the community are operated by young men who have taken them over from their fathers.

The young people have taken an active role in politics and in the informal life of the community. The mayor and several members of the town council are in their early thirties. A large American Legion hall has been built recently, and the Legion organization is composed predominantly of World War II veterans. The local Lions Club also contains a high proportion of young men.

The general picture that the town presents is that of a small, western community with many primary group relationships and a strong sense of community identity. It has an extremely active group of young adults who play an energetic role in the formal and informal life of the community.

There is only one group which is almost completely outside the life of the community. This is a group of about 10 seismograph crew members and their families who live in trailers at the edge of town. Employed by an oil company to prospect for oil in the area, they had been in the community about eight weeks at the time of the crash. Prior to the disaster, their only contact with members of the community was in the restaurant and stores in the town. Although they wished to be accepted, they were largely outside the social life of the community.

THE COURSE OF EVENTS

The Pre-Crisis Period

The airshow at which the plane crash occurred was one of the events scheduled during "Flagler Day,"--a sort of harvest festival which is held annually to celebrate the harvest of the fall crops. In marked contrast to later events, gay festivities preceded the air show. The first item on the day's program was a breakfast at the American Legion hall for 150 guests. Next came a kite contest at the high school football field, with about 50 children participating. Afterwards, there was a parade of floats and horseback riders. At noontime, there was a community barbecue, with a large crowd attending. This was held in a small park located near the business district, and the crowd lingered in the park after the barbecue, visiting with friends and waiting for the time for the air show, which was scheduled at the local airport for 2:00 P. M. The air show was to have been followed by a baseball game later in the afternoon and a dance in the evening.

In previous years, the main event for "Flagler Day" had been a rodeo. This year, however, a number of the younger members of the community urged that the air show be substituted, and arrangements were made to hire the Rocky Mountain Air Show to stage the event. The Rocky Mountain Air Shows was composed of a group of part-time flyers, many of them ex-Army flyers and Civil Air Patrol members, who gave the shows in order to make extra money for themselves. They had previously staged 11 similar shows at fairs in communities throughout Colorado. The Flagler Lions Club sponsored the air show and the town council approved it. Some local flyers were scheduled to participate in the air show.

The show was held at the local airport, which is located about a mile from the edge of the community. The airport is normally used primarily by crop-dusting planes (the airport manager runs a crop-dusting service) and also by a number of flying enthusiasts. It has grass runways, a small corrugated metal hanger, an adjoining office, and a gas pump.

By 2:00 P. M., when the air show was scheduled to start, about 1,500-2,000 persons had arrived. Nearly everyone from Flagler and many other persons from the surrounding farms and small towns had come. Five hundred or more cars were parked four rows deep on both sides of the hangars and on the road leading to the airport. Many of the people were sitting or standing in front of the first row of cars; others were sitting on the roofs, hoods, and fenders of their cars to get a better view.

The show was a little late in getting started. According to a Denver newspaper reporter, who was present at the time of the crash, the crowd was a little

impatient, but good natured. A number of the people were honking the horns of their autos to indicate their impatience.

A loudspeaker-equipped truck had been set up next to the hangar, and the announcer, a local airman who had been an Air Force flight instructor during World War II, was giving a stalling type of speech about the events that were to take place. The first event was to be a sail plane (glider) exhibition; and the second was to be a mock dive-bombing attack on a shack which was rigged up in the center of the field. The seismograph crew members had fitted a charge of dynamite in the shack, and, when the plane dived over it, they were to set off the charge. The head of the air show, a colonel in the Civil Air Patrol, had received word from Denver that one of the planes which was to take part in the air show had an oil leak and that it would be delayed briefly. This was the plane that later crashed into the crowd. It was piloted by Air Force lieutenant who served as a photo instructor at Lowry Air Base in Denver, who flew for the air show in his spare time.

About 2:15 P. M., the sail plane exhibition took place. The towing airplane cut the sail plane loose over the field, and it glided around over the airfield for about 20 minutes before it landed on the field. The crowd was apparently impressed and pleased with this exhibition. After it landed, a number of the men and boys went out to inspect the sail plane more closely.

The Crisis Period: 1. Impact of the Disaster

At this moment, the plane which was scheduled to arrive from Denver approached the field. The announcer reported that he saw the plane at that time but thought it was a transient ship not scheduled for the air show. It flew some distance past the airport and then made a turn and headed southeast directly toward the crowd. It came in at an altitude of approximately 150-200 feet and, as it flew over the center of the field, it started to do a barrel roll. However, it never completed the roll. It fell out of the roll, one wingtip struck the ground about 20 or 30 feet in front of the crowd, and the airplane crashed into the crowd and the parked cars.

Witnesses compared the effect of the crash to that of a scythe. It demolished the cars in the front row, including the town's only ambulance, and cut a swath through the people standing in the immediate pathway. Wreckage, oil and gasoline from the plane were scattered over a 150 yard area. The plane, however, did not explode or burn. Later investigation revealed that when the plane disintegrated the gas tank was thrown clear of the wreckage and, hence, there was a minimum of explosive material in the immediate crash area. However, this fact was not known at the moment of the crash.

Most of the persons in the direct path of the plane were killed almost instantly. Their bodies were badly mangled; arms and legs were cut off, and some had their faces and skulls completely mashed. Parts of bodies and blood were scattered over a considerable distance. Injuries resulted primarily from being struck by flying debris from the disintegrating airplane.

The Crisis Period: 2. Immediate Responses

Nearly all eyes in the crowd were focused on the plane as it began its stunt and started in the direction of the crowd. However, there were only a few seconds in which most persons had some forewarning of the crash. In this brief period some people took such reflexive actions as ducking behind cars, falling to the ground, or starting to run.

An elderly man said:

> Suddenly we saw the plane. It was coming right at me. I didn't start to think; I started running to the west. (What made you run, do you suppose?)* Oh, I just seen the plane coming for me. I didn't start to think; I just thought to get out of the way. And you know you didn't have time to think, or say anything; it was seconds and it was over.

A woman, who works as a cook at the local hospital, said:

> As the plane swooped down toward the runway, I wondered what it was going to do. Then it started turning toward the side and went crashing through the rows of parked cars. As I saw that it was crashing I ran, while fragments of the wing fell behind me. Then it was all over and when I turned around, there in front of the cars parked by the ambulance were four persons lying on the ground, two of whom I knew were gone; but I did not recognize any of them. Then as I stood there, still in a daze, a man came running by with a little girl in his arms.

A man whose wife, a son, and daughter were killed, recalled:

> God, it was awful! I saw this plane coming. I hollered, "Mama, duck!" I dived between two cars. There was an awful roar, and then this loud crash. I got up, looked around. Mama wasn't there. I couldn't see the children either.

A woman sitting in a car said that she reached for the door handle in order to get out and run, but her friend was in the way. The next thing she knew the plane had hit.

The first reaction after the crash of the plane was a shock or stun reaction and a brief period of complete silence. For a period of a few seconds, the entire crowd was immobilized, all action was suspended. Following this, a loud moan arose from the crowd, followed by anguished screams, shouts and cries. Then persons began to converge on the disaster scene--first slowly, and then more quickly.

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* The words in parentheses are the interviewer's remarks.

A man who taught in the local high school said:

> I saw a cloud of dust and debris fill the air as the plane crashed into a segment of the crowd and automobiles forming the first row of spectators. A brief moment of silence followed and then the cries of the injured and the screaming of others in the crowd could be heard as I rushed on down to the scene.

The announcer at the sound truck described the immediate reactions as follows:

> Everything was quiet then for just a small amount of time. (How long?) A matter, say, of two or three seconds. It was just a hush, everything was quiet, then people began to move toward the accident. It seemed first that they were beginning to move slowly and then, when they realized what took place, why they began to run.

A Denver newspaper reporter, who was standing on the airfield about 400 feet from the crowd, gave the following description:

> It was 2:40 or 2:45 P. M. My view at this point was obscured by the corner of the hangar. All of a sudden I heard a plane very low over my head and saw the plane taking a northeast direction doing a barrel roll and emitting a faint wisp of smoke. At the moment, I thought I must be confused--thinking that this was the plane that was to do the bombing. Then I realized immediately that the other plane that was scheduled to do the bombing had not yet taken off. I heard a faint noise; I thought that they had done a poor fake of bombing the crowd. Immediately following, however, I heard a chilling sound--a kind of moan--then, many voices, little cries, but little talk; and I began to run in that direction. People on the south side of the hangar also ran to the scene. There was a great deal of movement toward that direction.

A woman said:

> It seemed like for a second or two there was perfect quiet, then everyone jumped out of their cars and screamed.

Although a number of news reports described the behavior of the crowd as panic, there was no panic after the crash. Rather, there was a convergence toward the scene of the crash by highly emotionally involved relatives and friends. There was some short-lived panic among the people in the direct path of the plane just before it crashed, but the behavior which followed the crash was not flight behavior but movement toward the crash area.

The action of the crowd can best be described as expressive behavior. The screams and the convergence of the crowd on the disaster site was expressive of the great emotional anxiety which people had over the fate of the persons in the area. Many of the families had become separated during the air show and were scattered throughout the field. Hence, when the crash occurred many

did not know where their relatives were. In the first few minutes following the crash there was a great deal of confusion, excitement, and milling about on the part of persons frantically searching for their spouses, children, other relatives, and friends.

A few women were reported to have become somewhat hysterical when they discovered members of their family dead or injured. In general, however, the people who discovered dead or injured were more "dazed" or "shocked" than hysterical. The following personal accounts present a more detailed picture of the crowd behavior:

The announcer at the sound truck gave the following description:

> Well, the crowd did run, or quite a few did run into the area, but it wasn't a panic-stricken crowd; it was simply a run that indicated anxiety. It evidently indicated that the person had some friend or relative in that area; and he wanted to get down there and see if that friend or relative was hurt.

The Denver newspaper reporter gave the following account:

> When I got there and saw the scene, it looked like what had happened had the effect of a scythe. Cars in the front row were demolished. There was confusion among the crowd, but the noise factor was very little. Some people appeared stunned--they were standing or moving aimlessly; no one was weeping; there were a few hysterical cries--animal-like. (Would you tell me a little more about those reactions?) I'd say that the people were stunned. They were just looking at the dead; speaking only occasionally. (What were they saying?) You would hear remarks like, "My father is dead." Others were saying something like: "Is your little boy hurt?", and the reply, "He's dead." There was some interspersed moaning. It was definitely a shock reaction. The milling about was not as disorganized as you might think. They were not motivated except to find friends or loved ones. They were going some place--trying to find relatives or friends. For the most part people were just looking, saying very little. Within a 15 minute period, weeping became general. Friends were standing; the bereaved kneeling over their injured or dead. That was a typical pattern.

The local morticism recalled the behavior of a mail carrier whose wife was killed:

> He had picked up his wife and saw that she was beyond all hope, and he laid her down and kneeled there looking up at me. He just had a blank look on his face--sort of a question mark. He seemed to say, "What do I do now?" I said, "R____, come do this." He wanted someone to tell him what to do. I have known him for a long time, and I know that ordinarily he would have been able to do something without directions, but his wife was killed. But since he knew it, and knew that nothing could be

done, he just wanted to know what he should do. I'll never forget the look in his face when he saw nothing could be done for his wife. So when I told him to help, he did.

A woman described the actions of a man who had found his daughter seriously injured:

One man picked up a little girl; she was cut, and died in a few minutes. Oh, he was just crying; he looked terrible. He said, "My little girl's dead."

The evidence suggests that interest in the safety of others tended to follow this pattern: Mothers were concerned first with their children, then their husbands; husbands were first concerned with their wives, then their children. After locating their spouses or children, husbands and wives were next concerned with close relatives, then with intimate friends and neighbors; and finally with more casual acquaintances or persons whom they did not know.

An indication of the strong primary group relationships of the community was the almost complete ignoring of the pilot's body. The pilot, a resident of Denver, was unknown in the community. At the time of the crash, the pilot was catapulted from the plane and thrown into an open space between two rows of cars. Later examination showed that he had no outward signs of injury, and it is possible that he may have lived for a brief time after the accident. Despite the fact that his body was in plain sight, he was completely ignored until all the other injured and dead had been removed from the field. Many respondents in the immediate area reported that they did not remember seeing the body. Although a few persons reported that they saw the body of the pilot, apparently no one made any examination to determine whether he was dead or alive, until his body was picked up an hour or more after the crash.

The Crisis Period: 3. The Emergence of Informal Leadership and Organization

Despite the initial confusion and social disorganization, informal organization emerged quickly. The immediate lead in organizing the rescue and relief work at the airfield came from the announcer at the sound truck. Within seconds after the crash, he was issuing commands and announcements to the crowd over the loudspeaker. He indicated that his initial reaction was to drop the microphone and run over to the crash area, but the fact that he had the microphone in his hand probably prevented him. As he recalled, the first thing that he said over the loudspeaker was for the crowd not to enter the crash area. When he saw that this had no effect in controlling the anxious rush of the crowd, he called on the men in the area to organize and keep people out. He also kept announcing that people should not smoke in the area and that persons in the vicinity of the crash should not attempt to start their cars. At the same time, the announcer kept calling for doctors and nurses and persons who were skilled in first aid to go to the disaster scene.

For the first minute or two after the crash, his announcements apparently were ineffective in controlling the crowd. He said that he realized shortly that no one could have stopped the anxious rush of relatives into the area.

By repetition of the same announcement, however, persons who were only curious began moving out of the area. In the following quotation, the announcer gives a detailed account of the reactions to his announcements and evaluates the effectiveness of the loudspeaker:

> After a short interval [after the crash], people began to walk and then run toward the scene of the accident. Shortly after it took place, I began to ask people not to move into the immediate area. (How long was this after the crash?) Maybe five or six seconds. Shortly after that I asked the men in the area to take it upon themselves to keep people out of the area. By that time I couldn't see into the crowd very well; I could see the backs of the crowd, but I couldn't see the area itself. I did have a glimpse of some bodies on the ground, but the crowd closed in and I could no longer see. I was looking for some vantage point to climb to in order to view the scene better, because I could have given better orders.
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> I was amazed at how well the crowd did respond. At first there was practically no response to what I said over the speakers. It was just for a short time--maybe a matter of a minute or two. I kept repeating the same things, and gradually it began to sink in. I saw people back out of the area. I kept telling them to come to the hangar if they had no business in that vicinity--if they couldn't render any assistance; if they weren't skilled in first aid; if they weren't a nurse or a doctor--to come to the hangar; to move out of the area; if they couldn't give any assistance and wanted to help out the victims to please move out of the area. I just kept saying those things; and "no smoking," and "don't start your automobiles if you are in the vicinity of the accident."
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> It didn't dawn on me until as much as four or five minutes later that the fact that after the initial shock there those who had friends or relatives in the area would go down there regardless of what anyone said. It would make no difference if the President himself had been standing up there at the public address system, if it had been General Eisenhower or General Marshall, if it had been a policeman--it could have been anyone. If they knew that they had a child or close friend or close relative, he was going down regardless of what anyone said. The people I was addressing were those who were going down to the area out of curiosity to see what happened.
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> The public address system is a great help in a case like that. For example, a little later on they wanted to get some of the injured to town. A fellow came up and said: "We need some pickups [trucks] down there." So I immediately asked: "Anyone with pickups report to the accident area." And a couple of fellows standing nearby--there were two cars in the way blocking the lane which they could use to get through--and I asked those two fellows to have those cars moved so we could get the pickups through there. And they really responded. I couldn't guess the number of pickups, but we had far more pickups

then were required. We had enough pickups there to carry 100 people, and in just a short time. They just poured through there. That showed the value of the PA system.

The effectiveness of the announcements over the loudspeaker was verified by a number of respondents. Numerous persons reported that they did what they were told to do by the announcer. Some stated that they did not remember hearing the loudspeaker, yet they acted in accordance with the commands and announcements. That the loudspeaker played a part in preventing a possible fire was indicated by one respondent who said he was going to light a cigarette but stopped because the announcer warned against it. A Catholic priest who took a leadership role in the immediate relief work indicated that the announcements were effective in guiding his own behavior.

In general, the persons who tended to act first with reference to administering aid and assistance to others were people whose social roles or special skills fitted them for the types of problems which arose. These "disaster role persons" included the announcer himself, who was a flyer during World War II and had experienced many airplane crashes. By virtue of his knowledge of aviation, he was able to anticipate the crash some seconds before it happened, and he was well aware of the danger of explosion or fire. Hence, he was already partially prepared to act by the time the plane had crashed. The Catholic priest, by virtue of his training and indoctrination, was similarly prepared to act in such a situation. He moved quickly to the scene, started administering last rites to the Catholics, gave aid and comfort to the injured and bereaved, and gave instructions to others. A doctor, the head of the local hospital, immediately left the area to get his medical kit, but the injured began arriving at the hospital before he could leave, so he started organizing medical aid at the hospital. Similarly, several nurses who were at the airport went to the crash area immediately to assist the injured. A telephone operator, who was watching the air show from her home in Flagler, went to the telephone exchange immediately and started calling all the surrounding communities to ask for doctors, ambulances, nurses, and medical supplies. The local mortician, whose wife and child were seriously injured when the plane struck the ambulance on which they were sitting, checked the condition of his wife and child and then began to direct the removal of the injured and dead.

It should be noted, however, that these "disaster role persons" acted in a leadership capacity only when they knew they had no close kin involved or after they had assured themselves of the relative safety of their own family members. The announcer, the priest, the doctor, the nurses, and the telephone operator already knew that their own immediate family group members were not in the accident area or quickly ascertained this after the accident. The mortician, on the other hand, experienced a strong conflict between his role as husband and father and his role as mortician. After the crash occurred, he went to the ambulance where his wife and child had been sitting. He discovered his small daughter first and thought she was dead [he later discovered that she was badly injured], so he then looked for his wife and found her on the ground seriously injured. He asked another man to go to the mortuary to get the hearse and, while he was waiting for the hearse to return, he examined his wife. He decided that if she remained quiet she would not need attention for about two or three hours. His wife told him that she would be all right and that he should try to help the other people. He then tried to

calm a number of the children whom he found in the area and assisted some of the injured. When the hearse arrived, he took his wife and child to the mortuary and then made four or five more trips to pick up other persons who were injured or dead.

The realization that other people expected him to play his role as mortician and his feelings of duty to his wife and child posed a dilemma at first, which he resolved initially in favor of attention to his wife and child. When he was assured that they were given the necessary care, he was able to assume his role in the community:

> I was in a dilemma at first because I knew people would expect a lot of me. It isn't like in the city where they wouldn't know you. But everyone here knows me. At first I went to see my wife and child before trying to help others. When I found my daughter, she seemed to be dead, so I left her and found my wife. She was conscious, and I knew she was injured internally. But she talked to me, and I told her to lay still. I knew she could take care of herself and would be okay for a couple of hours maybe.
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> Since there was nothing I could do for my wife, and I thought my little girl was gone, I tried to keep myself busy. And people figured I'd help in any situation that comes up even though it isn't death. In a small town like this, people expect the undertaker to be human and do all kinds of good deeds. For example, there's a little crippled girl in town here and I stop by and take her for a ride to show people I'm not a cold-blooded undertaker, but interested in the living.

However, the conflict between his concern for wife and child and his feeling of duty as a mortician continued at the mortuary. He describes this conflict and the effect of the tension in the following quotation from the interview:

> It was hard on me to work with my attention divided between the hospital, the mortuary, and my family. I would go up and look at my wife and child in the operating room, and then down to the morgue, and then over to the hospital, and then back to the mortuary. First I would go upstairs and look at my family and then downstairs to the morgue. (How were you feeling at this time?) It didn't get me until about 4:45 [afternoon of the same day] when they were giving my wife and child plasma. I was over at the hospital, and I broke down completely. (Broke down?) Yes, I was crying and sobbing from nervous tension. A woman walked up to me around behind the hospital and said: "You can't do this now, you've got a lot to do yet." This helped until 5:15. Then I was all right and could work again until the plane [i.e., the medical rescue plane from Denver] came. And then we all went [i.e., himself, his wife, and child] to Denver on the plane. We had three embalmers

> working here so they didn't need me. We arrived at the hospital in Denver at 6:30. I was in Denver until midnight when they were given hypos and plasma, and there was nothing I could do about it. So I came back here about 3:00 A. M. Sunday.....I knew that everything had been done for my wife and child.

Although the initial leadership was undertaken by persons whose usual social roles fitted them for the disaster, there was also a great deal of spontaneous assistance from other persons in the crowd. Much of the relief work was carried out by persons who saw certain small acts which they could perform; and they performed these on their own initiative, without direction. Thus, many persons who had blankets in their cars pulled them out and covered the dead and injured, and tried to comfort the injured and the bereaved; a number of men went to the announcer at the sound truck and volunteered information or suggested certain announcements; men in the area of the crash started roping off the area and pulling out cars which were blocking the paths of others; several men went to the highway junction and directed traffic to and from the airport.

The great amount of spontaneous mutual aid was due in large part to the high degree of social solidarity and close personal identification of the people. Almost everyone knew each other, and it was primarily a matter of helping one's relatives, friends, and neighbors. Moreover, despite some degree of social differentiation in normal times, the basic value structure of the community emphasized the norm of neighborliness and mutual aid in times of need. The assistance offered after the crash was essentially an intensification of the pre-existing sense of social solidarity and community identity. The norms which ordinarily operated to differentiate one group from another [e.g., religion and socio-economic status] were quickly abandoned in favor of mutual support. This was demonstrated in the indiscriminate use of private property after the crash. People participating in the transportation of the injured and dead, took pickup trucks and autos, regardless of their ownership. Property rights seemed to be of little importance. As an older man said: "You just took any car you could get hold of and just started drivin'."

The spontaneous organization for relief was continued long after the crowd dispersed from the airfield. A group of women set up a canteen in a garage across the street from the hospital and served food and coffee to the bereaved and to the persons participating in the rescue and relief work. Food was prepared and brought to the canteen by housewives in the community. When it became known that the hospital needed additional blankets, the housewives responded immediately. As one woman said:

> They called for blankets, and I don't think it was but ten minutes they had so many they didn't know where to put them all. Someone came out of the hospital and said they needed them. By the time I got there, they didn't need them anymore, they were piled so high.

A local high school teacher took it upon himself to compile a list of the dead and injured. Within one and a half hours after the crash, he had an accurate list posted in the newspaper office just one door from the hospital.

days following the event seemed to forget more telephone numbers than usual. Sometimes they would pick up the phone and say they had forgot who they were going to call. The night following the accident, virtually none of the respondents interviewed were able to sleep. Most reported that the imagery of the plane coming toward them or the sight of the mangled bodies kept recurring.

The wife of the local doctor reported that nearly everybody that she met seemed dazed and confused. She said that several clerks in the stores kept making mistakes and that people would come into the store and forget what they wanted. One of her neighbors reported that she went into the grocery store and ordered $5.00 worth of groceries; when she returned home, however, she found that she had not gotten anything she needed.

The Post-Crisis Period: 2. Physiological and Psychosomatic Reactions

Every person interviewed--from those who were themselves injured and had members of their family killed to those who were only minimally involved--suffered some type of acute physiological or psychosomatic reactions. Inability to sleep and loss of appetite were the most common reactions. Many others, however, complained of headaches, nausea, vomiting, chills, and general nervousness.

The head of the local hospital said that he had treated about a dozen persons for various psychosomatic symptoms. He reported that among these inability to sleep and loss of appetite were most common, followed by nausea, vomiting, headaches, and diarrhea. One man was admitted to the hospital for treatment of a re-activated coronary difficulty. The physician pointed out, however, that the psychosomatic reactions were much more widespread than these 12 cases indicated, because residents were voluntarily staying away from the hospital so that the more seriously injured persons could be adequately treated.

One mother who was interviewed had lost a child and remembered vividly the picture of her six year old girl with her arm torn away and part of her head cut off. She exhibited extreme psychosomatic symptoms. For about three days after the crash she "could hardly breathe" and felt an extreme "tightness" in her chest. She could eat very little, and when she was able to fall asleep, she would awaken shortly with a start and scream. She would either dream or lie awake and relive the occurrence, seeing vividly her dismembered child. On the third day, she reported, she sat up suddenly and exclaimed that she had seen a vision in which her child was in heaven and in Jesus' arms. From that point on the extreme psychosomatic symptoms disappeared and she was able to eat and sleep more and help care for the family. However, she was still in a very listless and nervous state on the fifth day [she cried freely during the interview], and she was still occasionally reliving the experience.

The priest who took a lead in the initial relief work reported that he had lost seven pounds in weight during the time he was assisting at the air field and he also complained of neurodermatitis--saying that his skin was extremely dry and his hair was falling out. He also reported being unusually thirsty.

Two members of the seismograph crew who were interviewed reported chills and general nervousness. One had developed a muscular spasm in his back which he attributed to his experience at the air show.

Many of these symptoms were still present five or six days following the accident, although most of the acute physiological symptoms like nausea and vomiting had disappeared by that time. Up to a week afterwards, however, many persons were having recurrent catastrophic dreams, sleeplessness, and general nervousness.

The Post-Crisis Period: 3. Rumors and the Assessment of Blame

Although there was an exchange of information as to the particular people who were dead or injured, there were very few rumors among the crowd who witnessed the crash. The immediate cause of the accident was clearly perceivable, so the rumors which circulated were mainly concerned with the identity of the persons killed or injured. Moreover, the announcement of casualties over the loudspeaker and the prompt posting of casualty lists in town appear to have kept down the scope of rumor circulation with regard to these subjects.

Later rumors were mainly concerned with the condition of various persons affected by the disaster and the reasons for the crash. In general, the pilot was blamed for the crash, but the respondents voiced little vehemence against him. Statements in which they voiced the opinion that he was to blame were usually tempered with statements which excused him. Many people pointed out that he could not have crashed intentionally and that he may have had a heart attack or the plane may have had some type of mechanical failure. Some people expressed sorrow for his wife and children. The following statement by a woman was somewhat typical of the statements concerning the pilot:

> I think it's his fault. I don't think he did it intentionally, because he was killed. He came in late and wanted to start with a bang. But he was a married man with two children.

A husband and wife who had their daughter killed in the crash showed great hostility toward the town leaders. The pilot was exonerated, but the town leaders were blamed for bringing in the air show. The husband said that for three days after his child was killed his wife was in such a state of shock that he thought she was going to die. He said that he felt that if she did die, he was going to kill someone among the town leaders. However, this was the only case of strong feelings of aggression that was encountered.

A number of older people who were interviewed expressed some resentment towards the younger people in the community. In one case reference was made to "those Legion boys who brought in the show." Some people resented airplanes in general.

At the time of the field investigation, however, there was no general consensus on who was responsible for the crash. People were still actively talking about the reasons for the crash, but had not arrived at a general definition concerning blame. Later investigation might have shown a greater tendency for focalization of blame.

The Post-Crisis Period: 4. Attitudes toward Relief Effort

Nearly everyone who was interviewed praised the way the rescue and relief work was carried out. They felt that everything was done that could have been done to help those who had suffered in the disaster. Most people were reticent about singling out individuals or groups who were especially helpful, saying that everybody "pulled together" and acted like one "big family." Most persons felt that the community was drawn closer together by virtue of the mutual support and common suffering [nearly every family in the community had some relative or close friend killed or injured in the crash].

The disaster also appears to have resulted in a partial breakdown in the usual social isolation of the community. A number of persons remarked that previous to the crash they had felt that the community was completely self-sufficient and independent, having no need for outside aid. As a result of the quick response and large amount of aid furnished or offered by outside agencies, however, they reported a feeling of greater interdependence with other areas.

The Post-Crisis Period: 5. Changes in Status of Individuals and Groups

Despite the general reticence to single out specific individuals or groups for praise, it was clear that a number of individuals and groups had achieved a new status in the eyes of the community. Particularly striking was the general rise in the status of the Catholics in the community. Prior to the crash, the Catholics--a minority within the community--had been held in fairly low esteem. By virtue of the fact that the Catholic priest was one of the first and most active leaders in the relief work and also because of the exemplary behavior of several Catholic families who suffered the greatest loss in the disaster, there appeared to be a general rise in the status of the Catholics. A number of persons referred to this new attitude toward the Catholic priest, and the priest himself was conscious of his new status, indicating that he had received praise from many of the townspeople for his role in the disaster. The Sunday following the crash, a Protestant presented himself to the priest for conversion to Catholicism--a fact which appears to be related to the changed status of the Catholics.

The mortician and the newspaper editor also appeared to have risen in status as a result of their action in the disaster. Both were fairly recent residents in the community and, according to several respondents, were still not fully accepted by the older residents. The long hours of work which they spent in behalf of other residents, however, appears to have gained them full acceptance and high esteem in the community. Other persons who received considerable praise were the announcer, the head of the local hospital, and his wife [a registered nurse].

There is some evidence to suggest that certain groups, such as the Lions Club and the American Legion, declined in status as a result of the disaster--particularly in the eyes of the older inhabitants. This appeared to be related to the fact that the younger members of the community, many of whom were members of these groups, urged the air show on the community. Several older respondents referred to the younger people as "always having a good time," and "getting away from God," and "those Legion boys who are always

running things." There was little open expression of hostility toward these groups; references to them were nearly always veiled and indirect.

The Post-Crisis Period: 6. Other Individual and Collective Effects

A number of persons had conversion experiences or reported that they felt that they had strengthened their religious faith as a result of the experience. A father who had one child killed while his wife and two other children, who were standing together, escaped, said that although he had been an atheist he now believed in God. In a number of cases, narrow escapes were attributed to "God." Religious belief appears to have helped many of the people to weather deep personal losses. Among persons who had family members killed, frequent reference was made to the "will of God," and immortality.

As might be expected, the attitude toward air shows was very unfavorable, and a number of persons had developed a fear of airplanes in general. It was the general consensus that there would never be another air show in Flagler, and many persons expressed the belief that there would be no more "Flagler Day" celebrations in future years. Others discounted this, however, and said they felt that once the immediate grief had been overcome people would want to continue holding the annual event.*

One of the results of the disaster transcended the community and will affect all future air shows. After an investigation of the Flagler crash, the Civil Aeronautics Board issued an order banning acrobatics in air shows throughout the United States.

SUMMARY AND CONCLUSIONS

The Flagler disaster offered an excellent opportunity to study the effects of an instantaneous disaster on a small, relatively homogeneous community, characterized by a high degree of social solidarity. Because of the small size of the community it was possible to sample a large proportion of the inhabitants and obtain a fairly adequate overall view of the reactions of the entire community. The material obtained in this study may help provide a base of comparison for the study of the reactions of a larger, more complex, and heterogeneous community. If valid and significant findings concerning the nature of human reactions in disasters are to be obtained, such comparisons must be made.

One of the most significant features in the reactions of persons at Flagler was the strong kinship bonds and close personal relationships of the population. This proved to be both a disorganizing factor and an organizing factor in the behavior of the persons affected. Initially, as illustrated by the emotional anxiety and convergence of the crowd on the disaster scene, it proved to be a disorganizing element. Although only a few persons were directly affected, almost the entire population experienced the shock by

* The celebration was not held in 1952. The local newspaper published a "memorial column" in honor of those who lost their lives and the local churches conducted special memorial services.

virtue of their interrelationship and strong sense of identification with the persons themselves involved. The great amount of confusion, excitement, and initial social disorganization can be accounted for primarily on the basis of the strong emotional involvement of the crowd.

To some extent, this strong identification also proved personally disorganizing to the persons participating in the relief work. The physician in charge of the local hospital, for example, said that he was not able to work as efficiently as some of the outside doctors because of his intimate personal acquaintance with most of the victims and their families. Similarly, many other persons were psychologically incapacitated by the shock of seeing close relatives and friends killed instantly before their eyes.

However, the strong sense of solidarity and interrelationship also proved to be an organizing factor in the behavior of persons, since they felt responsible for the care and welfare of others. Almost immediately following the crash, spontaneous organization arose among the crowd and this voluntary aid continued long afterwards. By the time outside aid arrived in the community (the first ambulance from another community arrived approximately 20 minutes after the crash), this organization for rescue and relief was already well under way. The community had no formal disaster relief plans or agencies; yet most of the problems which arose were coped with by effective improvisation and informal organization. Without the strong pre-existing informal understandings and interrelationships, such effective organization would not have been possible.

A crucial element in the development of this informal organization was the presence of a loudspeaker system. The public address system was of great importance in directing the crowd, restoring order, and in organizing the relief activities. In most disasters there is a breakdown in the channels and technical facilities for communication. In the present case, however, the technical facilities for communication remained intact. This case, therefore, provides something of a crucial test of the effectiveness of a loudspeaker system immediately following a disaster. In this period persons are highly suggestible to commands. The announcer at the air show utilized this suggestibility in a very effective fashion. The confusion and social disorganization present immediately following the crash would undoubtedly have been prolonged for a considerably longer period if there had been no means of communicating directly and forcibly to the crowd.

The present disaster also demonstrated the efficacy of having persons who are well-trained and organized to act under conditions of disaster. The evidence indicates that those persons whose experience had prepared them to act under such conditions were able to regain self-control and organize their behavior more quickly and more effectively than persons not so prepared.

The evidence also suggests, however, that even those persons whose social roles prepare them for disasters will act in terms of the wider community only if they are assured of the relative safety of objects with which they are highly identified or ego-involved. As in the case of the mortician in Flagler, if they feel that their family or other highly cherished objects are threatened, their first actions are likely to be oriented toward

these objects rather than persons or objects toward which they are more abstractly related. In terms of concrete disaster plans, this suggests that persons who have minimal identification with the community in which they are working are likely to be most effective as disaster control personnel. A corps of well-trained, organized, and experienced disaster control or relief personnel who move in quickly from outside the community are likely to be more efficient than a similarly trained corps who have strong emotional attachments in the community.

In addition to the strong emotional identification of the persons involved, four features of the present disaster appear to account for the intensive psychological shock which most persons experienced:

1. The unexpected nature of the disaster. The crash was completely unexpected and unanticipated. It occurred so rapidly that persons were not able to prepare themselves either physically or psychologically. Hence, persons were caught completely defenseless.

2. The types of persons killed. Out of the total of 20 killed, 13 were children, and three were women. Many of the men who had seen combat and a great deal of bloodshed during World War I and II reported that this disaster affected them much more deeply than any of their war experiences, primarily because of the unexpected nature of the crash and the fact that so many "helpless" children and women were involved.

3. The nature of the deaths and injuries. Many persons reported that one of the most shocking things was the sight of so many mangled and dismembered bodies. The sight of a child's foot with a sock and shoe on it, the battered faces of some of the victims, and similar sights kept recurring in the imagery of most persons who witnessed the event and appeared to be responsible for many of the severe emotional and physiological disorders which followed the crash.

4. The extent of deaths and injuries. The extensiveness of the shock and bereavement reactions can be accounted for primarily on the basis of the proportion of persons who were killed and injured and the nature of the social relationships. Over two per cent of the total population of Flagler was killed and over five per cent were either killed or injured. With the close kinship and friendship relations in the community, this meant that nearly every person had either a relative or a close friend killed or injured in the disaster.

Appendix B-2

Report on a Series of House Explosions in Brighton, New York, September 21, 1951

REPORT ON A SERIES OF HOUSE EXPLOSIONS IN BRIGHTON, NEW YORK, SEPTEMBER 21, 1951

INTRODUCTION

The following is a report of an investigation conducted by the National Opinion Research Center Disaster Research Team into the social-psychological effects of the seriesof house explosions and fires which occurred in Brighton, New York, on September 21, 1951. It is based primarily on data gathered in thirty-one tape recorded interviews with residents and officials of the area. The material gathered was supplemented by a number of informal interviews and local newspaper accounts. The field investigation was made during September 26-29, 1951.

Nature of the Disaster

On Friday, September 21, 1951, there occurred a series of house explosions in Brighton, a residential suburb of Rochester, New York. The first of these explosions occurred at approximately 1:10 P.M., and they continued intermittently over a period of about two hours. Due to an unusual combination of circumstances only two people were killed; in addition, an elderly woman died of a heart attack while being evacuated from her home. The two people killed were a girl, aged 8, and a boy, aged 4, both members of the same family. At least 24 persons were injured in the explosions or their consequences. Of those injured, however, only five or six were residents of the area. The remainder of the injuries were sustained by firemen and policemen who were participating in the relief work and consisted mainly of gas poisoning and being overcome by smoke. The injuries suffered by the residents resulted primarily from being struck by flying debris.

In all, 16 houses were completely demolished and about 25 others were from heavily to slightly damaged. An unestimated number of other houses sustained minor damages, consisting primarily of cracked walls and ceilings. The total value of the property destroyed alone was estimated at over one million dollars. In addition an unestablished amount of personal property was either destroyed or damaged.

The first blast took place at Twelve Corners, a busy intersection at the center of the town's shopping district where construction work had been in progress for some days before. This initial explosion occurred in the vault containing the gas-reducing valves for the area. These valves were designed to bring the pressure of the natural gas from 30 pounds per square inch down to one-fifth of a pound per square inch at which pressure it entered the houses. The blast in the vault caused the concrete ceiling to cave in and crushed the reducing mechanism, allowing the full 30 pounds of pressure to enter directly into the houses in the area regulated by these particular valves.

The result was that in some cases the pilot lights and the water heater burners blew out, filling the house with gas which was ignited by another pilot or an electrical spark, thus causing an explosion. In other instances the

pilot jets, water heaters and gas furnaces shot out tremendous flames, setting the house on fire. In general the demolished houses were those that exploded, whereas the damaged ones were those that caught fire. A peculiar feature of the exploding houses was that the debris landed in a rather small area. This followed from the fact that explosions occurred in the basements, thus lifting houses into the air andallowing them to settle back down into their own basements.

Following the initial blast in the vault at Twelve Corners, houses began to explode and catch fire over a relatively large area, approximately a mile long by a half mile wide. There was, however, no particular pattern, either spatially or temporally, in which the various houses blew up or caught fire. A house would catch fire in one place and then a few minutes later a house located blocks away would explode. There was a slight tendency for explosions and fires to occur in some blocks more than others; but even in such cases there was considerable lag between the explosion or firing of one house and a neighboring house.

The various official agencies of the community went into operation almost immediately after the report of the first explosion. It took some time, however, before the gas main could be shut off and all the houses rendered safe. Thus, although the last explosion occurred about two hours after the initial one, the area was not considered officially safe until three or four hours after that.

The magnitude of the disaster resulted in a considerable mobilization of the disaster and relief agencies of the surrounding area, with units and equipment coming from as far as 40 to 50 miles away.

The Community Affected

At the time of the 1950 Census, Brighton had a population of 18,036. While it is a suburb of Rochester, New York, it has its own town supervisor, police department, and volunteer fire department of three companies. Most other official and formal agencies having jurisdiction over the area, such as the Red Cross and Civil Defense, have their offices in Rochester proper.

The town is a typical suburban community, although of a rather high socio-economic status. The mean assessed valuation of homes in 1940 was $25,000 and the mean income in 1951 was roughly $10,000. Almost all the residents own their own homes.

The population in some respects is intermediate between that typically found in urban and rural centers. The degree of social solidarity, while not as high as usually found in rural areas, is higher than that of metropolitan centers. The social relationships, while more continuous and more intimate than typically exist among urbanites, are not of the same closeness generally present among rural folk.

The findings may suggest differences in rural-suburban-urban characteristics as they affect behavior in disaster situations. Any generalizations made in this report, however, should be viewed as tentative and subject to revision in the light of further investigation in similar types of situations.

THE COURSE OF EVENTS

The Pre-crisis Situation

The afternoon of Friday, September 21, found a typically uneventful and quiet situation in the community. The overwhelming majority of the men were away at work, mostly in Rochester, and a few at scattered shops and offices at the center of Brighton. Almost all of the children were attending the consolidated school which is located 200 yards from Twelve Corners. A few children were home, however, because the Catholic Schools were closed that day. In general, the population of the area that afternoon constituted a majority of the women residents and their pre-school-age children.

At the time of the first explosion many of the women were finishing lunch or working in their kitchens. For those who lived in all-electric houses, in view of what later happened, this was not a matter of too great import. However, for those homes supplied with gas the fact that the housewife was in the kitchen was rather important. It was there the first indication that something was amiss with the gas was noticed. If the trouble had occurred at a time when many women would not have been in their kitchens, they would not have had this advance warning. Probably there would have been many more casualties. Similarly, as a number of the persons interviewed noted, if the explosions had occurred at night, when the children and men were also at home and the family was in bed, the list of dead and injured would undoubtedly have been higher.

The Crisis Period: 1. Recognition of Danger

The normal routine of activity was broken and the attention of people was focused elsewhere by a variety of occurrences. Typically, one or more of the following occurrences tended to direct attention to the event: (1) A noise of varying intensity was heard in the distance; (2) the gas in the kitchen was seen or heard to act in an unnatural way; (3) an unusual noise was heard in the basement; (4) neighbors came in to inquire if the householder was also having trouble with the gas.

There was considerable variation in the interpretations given to these various initial attention-getting incidents. In the first instance, the noise in the distance was generally not interpreted as indicative of any danger. As one man put it, "I didn't think anything serious of it at all. We hear a lot of blasting. We hear backfire from automobiles so I didn't make anything of it at all. I just let it go at that." Similarly, one woman stated, "I thought actually it was dynamite because they were repairing the street at Twelve Corners....I really had no emotional reaction to that." This interpretation of the noise as blasting was an almost universal one among those interviewed.

Often, however, something else happened so quickly thereafter that the person immediately formulated another interpretation. Sometimes this was occasioned by another explosion. The Civilian Defense warden of one block stated:

> When I heard the first explosion I didn't think much of it. They have been blasting up here. I didn't think much of the first one because they have been doing all the blasting up here....and then when the second one came and it shook the

> house—well, then I knew there was something wrong. The first thing I thought of was a bomb, naturally....I just felt it was a bomb before I get to the front door. It didn't take me very long to get to the front door to find out what it was....I heard the women in the street running and screams and cry out and I ran out and the house over there was in flames and it was just flames from the bottom to the top....I could see—I didn't think it was a bomb because if it had been a bomb it would've been more than that one house across the street and, of course, as soon as I looked at it I figured it would have been more than that.... There'd be more than one house afire if it were a bomb unless it was a direct hit...it would have flattened more than one. Then I figured the only other thing it could have been was the gas because we've had other explosions.

Those people who had trouble with the gas in their kitchen rather quickly felt some danger. One such woman stated:

> I was doing some cooking. I heard this strange noise coming out of my stove and I immediately turned off all the gas jets and the stove started to smoke so I could see there was some trouble....I did get very frightened when I had all my gas jets turned off and my stove was smoking. I got very frightened then because I knew there was something wrong....It felt as though my stove was alive.

Those who heard a noise in their basement at first did not designate it as anything in particular but only as something to be investigated. Once a check was made there was little difficulty in establishing exactly where the sound was coming from and, consequently, that something was wrong with the gas. One woman stated:

> I was in the kitchen. In fact, I was talking to my milk salesman and we heard this terrific noise in the basement so he and I rushed down and found that it, by that time, was filled with gas. And it was pouring, we thought, from the meter and it was also the furnace making a noise as well as the meter.

A number of people had neighbors come or call to them to inquire if they too were having trouble with the gas. This was the first indication that they had that something was possibly amiss, but, for the most part, it caused no particular concern. In some cases, however, the behavior of the neighbor was of such a nature as to excite some interest, although the actual troubling incident was not established. One woman heard her neighbor call in a "hysterical" voice. She was unable to understand clearly what was said except that there was something wrong in the basement. Only when the neighbor came in to see her was the situation clarified.

In the cases of those people who established the fact that the gas was acting irregularly in their own homes, there was a relatively quick threat-realization. They felt or believed that there was personal danger. As one woman put it:

> As soon as I went down in the basement and heard the noise it was making I thought my house was going to blow up. I

ran out. I was really scared.

The initial definitions of women who defined the situation as dangerous was personalized; each housewife believed that she was the only one having trouble with the gas and, as such, the only one endangered.

On the other hand, those people whose attention was caught by the noise of an explosion did not view the situation as dangerous until they saw or heard other explosions. For those people not directly involved with gas, it was only the sight or sound of houses blowing up that initiated a sense of personal danger. The seeing or hearing of such occurrences brought the realization that it was not just a localized accident and that any house might explode. As one person stated:

> I didn't feel serious danger until the explosions commenced to repeat. Then I realized it was a serious situation. We heard the second explosion and then I thought, "Well, now, this isn't just an ordinary thing." Then I heard a third one. And then I was pretty sure it wasn't an ordinary thing.

The Crisis Period: 2. Initial Responses to Danger

Overt actions came quite fast for most persons, once they realized there was trouble with the gas. A few simply ran out of their houses; some because they were afraid there was going to be an explosion; others to ask their neighbors for help or information. In many cases, however, housewives stayed in their homes for some time, even after having found the gas acting unnaturally. Many people attempted to make phone calls. Generally calls were to the gas company or to the fire department. Some women called their husbands. This often occurred even when there was a realization of considerable personal danger.

In at least one case the woman was so frightened that she had great physical difficulty in trying to make the phone call. She stated:

> I looked down in the cellar and....the fumes were just terrible ....there was a terrific roar down there....then I called my husband. I was going to light a cigarette before I called my husband, and then I thought, "Gosh, no!" Fortunately I didn't ....Thank God....I had the cigarette in my mouth....After I remembered not to light that cigarette, I tried to call my husband but he wasn't in the office. I tried to leave a message with the girl but my mouth was so dry I could hardly speak. I was afraid that the house would blow up before I could get out. By the time I ran out I couldn't even shout at my neighbor who was going by in the car. I just couldn't make a sound.

Another woman noted that:

> With the sound and the rush of pressure--which I realized was a rush of pressure from the noise it made--I thought something was going to blow inside the furnace. My first reaction was that the furnace was going to blow up.... I went to the furnace door but something warned me that there might be a blast from a rush of air so, therefore,

> I didn't open the door. I went upstairs and called the fire department....my phone was dead. I rattled the receiver and I waited....the line was completely dead.... I realized that at any moment there might be a blast.... and my instinct told me that I should leave the house immediately and I did so. I went out the front door. I left the door open, took my daughter by the hand and my son who were all with me at the time, and ran out in the middle of the street and the house blew after me.... I'd say we ran 80 feet before the house blew up behind us.

In many cases phone calls were made because, while there was a realization of trouble, there was no feeling of very immediate danger.

> I knew that there was something wrong with my stove and I said to myself, I'm just not going to fool around. I'm going to call the gas company. I don't care if there isn't any trouble. I'm not just going to harm myself trying to fix something which I don't know anything about....When I decided to call them I didn't realize the trouble was so great.

In fact, in some instances the first realization that there was very serious trouble outside of their own house came when, upon a call to the gas company or fire department, an answer was made that they knew about the trouble and that they were doing all they could about it. Sometimes such a reply was made even before the woman had a chance to explain why she was calling.

A few of the women attempted to shut off their gas. These were rather atypical cases, however. Few seemed to have even thought of the idea at the time. One woman who did turn it off related:

> I heard a terrific roar. I thought it was water running by the sound of it and I checked all the faucets and they were closed and I picked up the stove top and found the pilot light had been blown out and was making a terrible racket. I realized something had gone wrong....and the quickest thing I could do was to get the gas turned off, phone for help and then get out....I didn't expect it to blow up at my face or anything....it was no sudden feeling you were going to die the next minute or anything....All I knew was that I <u>had</u> to turn it off.
>
> There was no controlling it. This girl helping me clean said, "Don't touch it, call the Rochester Gas and Electric." Well, I <u>knew</u> the Rochester Gas and Electric would never get out here with the amount of gas that was pouring out of that pilot light....that was the thing in my mind. Get the gas turned off....Still it didn't seem to bother you, it didn't seem to bother you that it might blow up while I was down in the basement because no houses had blown. If I had heard them blow I wouldn't have been such a heroine and probably would have gone out of the house and not turned it off either.

This woman further added:

> I do pride myself that I know how to turn off the gas. I knew that before. We were taught that during the war. If there was a bombing we were supposed to turn off the gas and the electricity. I didn't pull the electricity this time....I was too anxious to get out of the house after stopping the gas.

Relatively soon, most people in the area were out of their houses and in the street. This was true even of those who lived in all-electric houses. For the most part they had been alerted to the fact that something was wrong by the noise of repeated explosions. As one resident of an all-electric house put it, "You hear an explosion, you want to see what it is, so you run out." Such people left their houses in an effort to establish what was happening, and not, as in the case of those directly involved with gas, because they were afraid something was going to happen to them.

One almost universal feature about leaving the house was that few stopped to pick up anything. Those people who felt endangered in any way reported that their only concern was for their personal safety and that they did not even think of saving material possessions. One woman stated that she just "flew out." "I ran out of the house with absolutely nothing. No pocketbook. In fact I left my wedding ring at home." While fleeing without attempting to take anything was the typical pattern, there were exceptions. One woman snatched a pair of sunglasses as she left her home; another took a pair of shoes for her small son; several grabbed their purses. A few women did think of trying to get certain things but decided against it or only got some of them. One woman, for example, reported the thought flashed through her mind to get clothes for her children, the family securities, passports, insurance papers, and her purse. She did run upstairs for her purse. However, she stated that the worst moment of the whole experience was:

> ....when I was standing at the top of the stairs and I realized I couldn't go 17 feet one way and 5 feet the other way to get my securities. My instinct you know. My instinct was so strong, the feeling of something going to happen was so strong and I felt, I can't, I can't take the chance and go back and that was the worst feeling I had during the whole thing....that was the time....when I stood at the top of the stairs and realized—I had my purse which was a risk to get—and that I didn't have time, my instinct just told me I didn't have any more time left.

Once people were out of the house a typical pattern of behavior was to seek the company of others and congregate in a place that was thought to be safe. Many people viewed the street as a place of safety except for the possibility of being hit by flying debris. Many others, however, in talking it over among themselves, raised the possibility that the gas mains running under the streets might explode. A typical remark was to the effect that "we didn't know if the ground right under us would blow up." The small groups of people who felt such a danger tended to work their way to back lawns and yards where it was believed there were no underground gas mains. A further fact that entered into the consideration initiating such behavior was the belief that the trees and hedges would afford further protection against possible flying debris.

Other small groups congregated on front lawns, especially in front of all-electric houses. A number of women living in such houses, in fact, invited their neighbors to stand in front of the houses. It was the belief of these women and of those who accepted the offer that it was a spatial position of relative safety.

Still other people milled around in the middle of the street. In the beginning, at least, some women ran up and down the street calling to their neighbors to leave their homes and not to go back into them. Other women hurried up and down the street going from one small group to another in quest of information. Some mothers were busied trying to comfort their children.

There was a certain amount of hysterical behavior. It took the form of people (mostly women) crying and yelling incoherently, running in a random fashion, shouting that the world had come to an end, pacing up and down, wringing their hands, etc. A number of cases were reported where people became disturbed and overtly acted in such a manner that someone had to take care of them. One such instance was a young man who had just married one of the girls in the community. According to an eyewitness, he "just ran up and down wild-eyed wringing his hands and crying like a big baby. It was an awful way for a man to act in the situation." Another case was that of an old man with heart trouble who got so excited that he said he was afraid he was going to have a heart attack; the woman who was taking care of him pointed out that he was calm when she could keep him apart from people but when others came around and talked about the situation he became very excited.

As people milled around, a considerable number of rumors began to circulate. Among the most prominent were that the school had blown up, that buildings in the business section had exploded, that dozens of people were killed, that there was fire in the gas mains and all the houses in Brighton would burn, and that half of Brighton had blown up. Sometimes the stories were quite specific—e.g., that the Howard Johnson restaurant and another place called the Chateau, both located at Twelve Corners, had exploded. As new people came up to the scattered small groups in the streets, such stories were passed on.

Generally speaking, once people left their homes and saw what was going on in terms of exploding houses around them, they never went back in. Most of them did not desire to reenter their homes. As one woman said:

> There wasn't a thing in my house that I wanted to come back for. Nothing, not even my purse. Nothing. Nothing that I longed for. Nothing that I wished, "Oh! had I gotten that." I came back for nothing.

The Crisis Period: 3. The Development of Plans of Action

Those that did re-enter their houses gave two main reasons for doing so. They were: (1) to get car keys, and (2) to try to shut off their own gas or assist others in doing so. There were also scattered individual reasons for re-entering the house. Two women did so in order to get the baby which they had left behind when they rushed outside to see what the explosion was about; at least one person did so in order to answer the telephone which was ringing.

Some woman appealed to the few men around to come and turn off the gas in their house. One such woman stated:

> I went up to the man and said, "I'm afraid that's the gas." This man said, "Yes, our pilot lights are acting very queer." And I said to this man, "Are you turning off the meters? I don't know how to turn it off and anyway I'm just home from the hospital and I'm not supposed to be doing anything or even climbing stairs." So he ran over here with me and turned off my gas meter.

This woman, although she admittedly was very frightened, re-entered her house because, as she expressed it, "I thought that if he was willing to risk his life to save my house, the least I could do was to go with him to show where the meter was." There are indications that other women acted similarly because of the same reason.

The necessity of getting car keys, however, seems to have been the main reason why most people re-entered their houses. A number of cars were either parked at the curb or in the supposedly safe garage, but since almost everyone had fled without taking anything with them, very few had car keys. Whenever a small group decided to leave the area, someone would dash inside the house, grab the keys and come right out again. One woman did mention that she grabbed her purse with the keys in it and while running out "flipped off" the radio. Nearly everyone, however, reported that they thought of nothing but the car keys.

Some of the few men that were in the area not only re-entered their own houses but went into the houses of others to turn off the gas in them. For the most part, these men knew very little about gas and seemingly took such action because of the requests of the women. As one man put it:

> I should say I felt the worst about it when the whole thing started, because it's a situation with which I'm not acquainted ....I don't know very much about gas. I didn't know its nature and how to handle it and nothing of the kind. A lot of women all over the neighborhood running to you and asking your assistance. Can't serve them all at once. If there were more men at home perhaps they could have done something too. But they all knew that I was home. I'm here all the time, and they came to see what I could do for them. I think it's about the most tense situation right there. Of course I knew what was going on. I saw the explosions, the fire and I heard one after another going off....(the firemen arrived) and when I saw them I felt rather re—I could relax. For I was the only man around here. There was no other men around here that could actually do something.... When these men appeared, well I sort of relaxed and thought, "Brother, I'm glad you're here." Before any of them arrived I just felt I was the big thing and had to do it all.

After shutting off the gas in four houses this man reported he did not go into any more. A nearby house had exploded while he was in one cellar, and—

> After this explosion I thought it'd be fool-hardy for me to go into any more houses and perhaps be sent to Kingdom Come for no earthly reason than to save a house. And that was the last one I went into....Of course you can't feel alto-

> gether brave and say I'm a hero and all that sort of thing and go do a thing like that, because you can go down in the cellar and you don't know if you'll come back up again. This house over here, the lady wanted me to go across, but it got so tense that I decided I wouldn't go anymore and I'm going to stay outside.

Another man, unusual in that he had much experience with gas equipment, also turned off the gas in a number of houses. He did it on his own initiative without being asked. He reported:

> I heard this hissing sound down in the basement. I went down and tried to turn off the pilot light but I could see right away by the terrific pressure that something was radically wrong and I would have to turn off the gas at the meter. I came back upstairs just in time to hear M____'s house explode. I ran out and saw it going up in smoke....I realized that my house was still in danger even if my gas was turned off because if the one next door exploded it might get mine on fire so I ran over next door and turned off the gas. I kept on the run until I had turned off eight houses around mine; then I began to feel better and relax a bit....then I realized that I was a dawn fool. I had taken my life in my hands going down in all those basements.

This was, however, a very unusual case. Those men who turned off the gas valves in houses other than their own did so, for the most part, because the woman in the street asked them to do so.

Some people left the area as soon as possible after they had come to look upon the situation as dangerous. The people who left the area very soon after their perception of the danger did so on their own initiative without anyone from outside their immediate group or block area telling them to do so. They left because they felt the area in general to be an unsafe place with houses exploding all around them. There seemed to be no pattern to the explosions which would enable one to tell where it was safe and where it was not. As one woman stated:

> We didn't know where to stand because one house exploded on one side and then the other side....You didn't know whether it was a safe place or not....I thought we'd better get to some open place. The best thing I thought was to get out of the neighborhood.

Most residents, however, did not leave the area, even after initial realization of the danger. For the most part, people left when they were told to do so by someone from outside their immediate group or block area, even though the persons giving these instructions were apparently not acting in official capacities. For example, in the hardest hit street in the whole area most of the people did not leave immediately. The first blast there occurred at 1:30 P.M. and it was a few minutes after 2:00 P.M. before the last residents had left. During this time eight houses on that block had either exploded or caught fire. One of the women who stayed around noted that "we were just waiting, just hoping and praying the fire engines would come." Soon after the neighbors had gathered in the street she had suggested leaving but they could not agree on a safe place to go, so they stayed on.

Only when a man, a stranger to the group, who had walked by, said they should leave or they would be hemmed in by trucks, did they go. The first fire engine came down the street as the last car was leaving the block.

Those who left the area usually did so in groups, putting as many people in a car as it would hold. Most frequently they would gather up their closest neighbors, but some reported that they picked up mere acquaintances. There were incidents too where preference was given to elderly people, sick persons, and mothers with small children with them.

Those who left the area scattered in all directions. Nearly everyone went or was driven to the homes of relatives. The small group of women who had husbands working in the immediate vicinity went to them. Those who had no husbands nearby generally went to some immediate relative--e.g., a mother, sister or mother-in-law. A few went to their husbands in Rochester. Some went to the school in quest of their children. As one mother said, "Suddenly I thought about what happened to the school and I got very nervous....once I got up the corner I forgot completely about these explosions....and all I worried about was the school." Another woman whose husband was out of town went to her church for, "You just turn there naturally when you're in trouble." Practically everyone, however, went to some relative.

Some of the people who remained in the area did so because they felt that there was no danger either to themselves or to their homes. Thus, only a few residents left the street that was between the two hardest hit blocks in the whole area. The residents of that street had been forewarned by many explosions on either side of them. In a short time, two men had managed to shut off the gas valves in all the houses on the street before any blast occurred there. The residents felt safe because of this and because they also knew that there were a number of all-electric houses in the block.

Other people stayed in the area because they were so busy during what they considered the worst part of the disaster that they did not think of leaving. One woman who stayed noted that she was kept busy in shutting off the gas valve in her house, calling the fire department, helping her neighbor whose house was afire, and later giving the firemen water. She stated the police finally asked everyone to get out of that particular block but--

> I wasn't so afraid then. The emergency was more or less over before they--the worst of it seemed to be over before they had mustered enough men and with authority and so on around to tell you to get out of the area....you had lived through the worst of it then....you felt the ground was a little more safe to walk on then. That was when the people got there who told you to get out. If they had been right there to say "everybody out" you probably would have run then. It seemed as if the peak was off when they told us to go.

She added:

> It seemed as if this is the place you wanted to be. Just to walk down Monroe Avenue had no point.

Some other people stayed in the area because they were afraid their husbands would return and not be able to find them. Still others thought they should stay to prevent looting. This was especially true by the time all the houses were open and a multitude of disaster and relief workers were operating throughout the area. Finally, some people said they started to leave but after going several blocks, only to see another house explode, decided that it was just as safe at home.

The Crisis Period: 4. Fear and Helplessness

The people in the danger area during the disaster subjectively experienced a wide variety of reactions. The most prominent feelings seemed to have been those of fear and helplessness. These feelings were especially compounded by the general state of confusion that existed.

Particularly at the beginning, immediately after the general nature of the danger was established, there was a great fear in regard to one's own personal safety. In some cases once people had left their houses, they felt less endangered. For many, however, the continuing uncertainty of the situation prevented any great lessening of fear. One woman remarked that "You just don't think much of anything save that you're all right for the time being and you just don't know how long you will be." Another stated that "I felt as if I were standing in the middle of a popcorn machine. Everything was popping up around me and we didn't know where to go."

Mothers' fears were intimately bound up with fear for the safety of their children. This was true even for the children that were at the school, the fate of whom was unknown to the mothers. Part of this concern seems to have arisen as the people milled or stood around in the streets and talked about what might have happened to the school.

After running out of the house, some mothers worried about the fact that the babies that they brought with them were not fully dressed. In one case a woman ran back into her home to get a blanket for her sick child. In another instance a mother smelled the gas and reported that:

> I was afraid, especially for the baby, since they're affected so much quicker than grown-ups. I was so afraid that the baby would pass out from the gas—I was very worried about the baby being affected before we would be affected by it.

This worry about the effects of gas, however, was a very exceptional case. The major fear was of explosion, that the very ground on which one was standing would suddenly blow up. A secondary fear was of flying debris.

Those people who felt a sense of responsibility for others often stated that they were aided in trying to remain calm by this fact. One woman reported she was quite afraid and even trembling as she drove a car out of the area but she kept self control because:

> I had other people with me. I had to get that car out of here and out of this area after I filled it with these other people because their lives were then in my hands, in some measure, and it was up to me to get out of here as quickly as I could.

Another woman also reported that she did not break down. She stated:

> I might have if I hadn't the baby there, but having him there I was trying not to let him see that I was frightened. I didn't want him to know that his mother—I wanted to keep as calm as I could so he wouldn't get frightened. I think that's one of the things that kept me steady because I didn't want him upset.

There appeared to be very little concern over material destruction until after the crisis was over and there seemed to be no further threat of bodily harm, either to oneself or family members. As one woman put it:

> I was just so glad that I had gotten away from my house that I just didn't care about anything. Material things just didn't matter. I was so glad to find that the school was all right and my little girl was safe that nothing else really mattered....I knew my husband wasn't around....so I didn't have to worry about him....Nothing meant anything to me because I knew I could replace the things if my house had gone.

However, some people mentioned the fact that while they did not think of the monetary loss that they might be undergoing, they did fear they might be losing certain things which had sentimental value for them. One woman stated she worried over the possible loss of certain inexpensive but irreplaceable items which she had accumulated through the years and which had great meaning for her. In general, though, concern over any material possessions came only after a fair degree of personal safety was felt and only after all family members had been accounted for.

Accompanying the fear was a great sense of helplessness. One woman reported that as she stood in the middle of the street and watched houses exploding and burning all around her she "felt so helpless, just kinda of all alone as if nobody was ever coming." Others reported that at the time they had a sense of "incapability," of being "so small," of "inadequacy" and the like.

The rather random pattern of exploding houses was seen as a main factor in contributing to the feeling of helplessness, for what was going to happen next was impossible to forecast. Several people noted that if they could have figured out some pattern of the explosions they would not have felt so helpless:

> We just didn't know what was going to happen next. We couldn't make any sense to the pattern of the explosions. Maybe if we had known the path of the gas mains we would know which house was going next so that we could get out of the way, but as it was, we just did not know when the ground would blow up under our feet.

Another factor which contributed to a sense of helplessness was a realization of the magnitude of the disaster, that it was just not a localized incident. One woman reported she felt helpless when "we realized that the situation was more or less out of our hands and we couldn't do anything but

just wait." The extent of the disaster was something that was only appreciated relatively slowly and brought with it a sense of helplessness.

Another important factor contributing to a sense of helplessness was the nature of the disaster itself. Many women commented on the fact that they did not know anything about gas. As one said:

> We were just a bunch of helpless women; we didn't know any of the mysteries of engineering, so we couldn't do anything except stand and wait for our house to blow up and hope that we didn't get hit by any of the pieces.

Still another factor that contributed to a sense of helplessness was the fact that almost all the men were away at work. A somewhat typical comment was, "We just had this awful helpless feeling until the men came back." Still another was: "....if only there had been some men around to help us."

For most persons the worst part of the experience appears to have been the sight of the houses blowing up, especially near the beginning of the crisis. One woman stated it was:

> The first ten or fifteen minutes when....that house was on fire and you'd look down that street and see a house just disintegrate in front of you and you'd look sideways and see another one down there go and then you'd hear a noise and see the black smoke.

Some other women, on the other hand, reported in the words of one of them that, "The worst thing about the whole experience was the feeling of utter helplessness."

The Crisis Period: 5. The Beginning of the End

Two general events marked the end of the crisis period for most people: One was when they felt sure that there would be no more explosions; the other was when families were united or when people felt some assurance that all members were safe—that each one knew the whereabouts of every other one.

The subjective feeling that the immediate crisis, at least was over depended on what the people saw going on around them. One of the most reassuring events was when the employees of the gas company came to each house and checked that the gas was turned off. This action was interpreted as denoting the fact that there would be no more explosions. As one person stated:

> We had been told earlier that the gas had been turned off, but that didn't help much because there were more explosions after that. But when the men from the gas company actually went down into your basement to check to see that everything was all right you really began to feel that they knew what they were talking about and that you could begin to relax a little bit.

The other general event marking the end of the immediate crisis period occurred when family members began to communicate and re-unite with one another. As one woman put it, "When my husband got back from the office I was so glad to see him that I lost that helpless and lost feeling that had covered me." Similarly, another woman said, "The worst was over for me when I heard that all the children were safe and my husband came home." Still another woman said, "My boy is in high school and the teacher let him come home. He had been worried

terribly because he had seen all the smoke coming from the house next to ours and was coming to see if I was safe. We both felt much better when we were together."

Getting in contact with all immediate family members was also one of the first actions on the part of people who left the area. Generally the women phoned their husbands to tell them about the disaster and inform them where they had gone and could be found. For mothers with children in the school, another primary concern was getting in touch with the school to let the child know where they were and to ascertain what was being done with the children.

People experienced considerable difficulty in getting calls through as everyone tried to phone at the same time. The Brighton exchange reported a record 180,000 calls for the day. The most numerous were between 1:45 P.M. and 3:45 P.M.

Outside the immediate disaster area there were two large groups who were very deeply involved psychologically. One consisted of the 2,300 children who were in school at the time of the explosions. The other group was composed of the working husbands and fathers of the families in the general Brighton area.

The children who were in the school were physically close to the scene of the first explosion in the vault at Twelve Corners. They were immediately evacuated, however, by a routine fire drill and moved to a portion of the athletic field hundreds of feet from the school building and the street. Many, especially those in classrooms facing away from Twelve Corners, accepted it as a usual fire drill. Only after some time did they hear explosions and see black smoke rising in an increasing number of places near their own homes. This evidently led to some anxieties, but the teachers were able to maintain almost complete order. As one second grade teacher reported:

> They were all perfect little angels. They stayed together and didn't stray away while I read them stories and we played games. They did ask me about their homes and I assured them that if anything would happen they would be told about it and that everything was perfectly all right at the time....I think that the most unusual thing about their reactions was that they all stayed so close to me ....they just clung like grapes in a bunch. One girl had a very anxious look on her face which stayed all afternoon. When her parents finally came after her you could just see her face relax.

In most cases, the children were kept at the school until someone, usually a parent, came to pick them up. Such people coming to claim children, however, seemed to have added to the anxiety of the other children by giving them unfounded information concerning the number of persons killed or injured. They also passed on false information on what particular houses had exploded.

Many of the teachers, themselves residents of Brighton, also were deeply involved psychologically. The fact that they had to take care of the children, however, seemed to have had a steadying effect. As one young second-grade teacher put it:

> I'm afraid that this doesn't sound very good but as I look back on it my first concern was with taking care of the children....I knew there were explosions near my house and that my mother was home but I realized that my job was with these kids and I was proud that I was able to keep them under control....that was a big question in my mind since I just started teaching last September. I thought there is no use worrying about home because whatever will happen will happen and I already have a job to do.

The men who were away working in Rochester appeared to have found out about the disaster in many different ways. Typically, the first report heard was very vague and grossly exaggerated. Many of the men attempted to reach their families by telephone but most could not get through because of the volume of calls or because no one answered at the house they called. Failing to get through by phone, many of these men began to drive back to Brighton. Others did not even attempt to phone but immediately upon hearing the first disaster report, started for their homes. Some returned to the area while the explosions were still occurring. In at least one case, a man who returned was responsibile for turning off all the gas valves in his particular block. Most, however, found themselves tied up in the traffic jam which quickly ensued, as they, disaster and relief units from Rochester, and mere curiosity seekers all converged on the normally heavy traffic road that leads into the center of Brighton.

In many cases, even when the men eventually reached the edge of Brighton, road blocks had been thrown up and they were not allowed to enter the town. There is also some indication that the people manning the barricades gave out either vague or exaggerated information on what was going on in the area. Despite all this, a number of men took to the back roads and were able to work their way into the disaster area.

Probably typical of the experience of many men who were in Rochester, is the following description of how one man came to learn of the disaster and what he did. According to his wife, this man, a physician living in the area, was at his office when:

> A patient said to him, "What are you doing here? Don't you know that all of Brighton is blowing up?" He left the patient on the X-ray table, told his receptionist to dismiss the rest of the patients and tried to call a cab. There were none available, so he saw someone he knew who had an office across from his and he asked him if he would take him to Brighton. He said he would. About this time another man just came back from lunch and hadn't heard about it yet and my husband said, "Hop in, let's go see what the trouble is." When they got to Brighton there was a road block to keep people out of the area. My husband asked him what had happened and the man said, "I don't know, but something terrible has happened. I'm just here to direct the traffic." My husband, who never gets very excited, started running from where he could park the car and after running for about three blocks he met one of our neighbors who said that our house hadn't blown up and that I was all right.

Many of the rumors which circulated appeared to have been at the periphery of the disaster area. Several people who left affected blocks reported

they ran into rumors only when they got out of the area. One woman who had remained on the worst hit street for over a half hour after the first explosion related that when she got out to the main thoroughfare where the road blocks were:

> Everyone seemed to have a different version of what was happening....the mothers were especially worried about the school children because they had heard the school had blown up.... there were all kinds of rumors. Some of them we doubted. They sounded very fantastic....some were saying we had been bombed. Others were saying it was an atom bomb, which we could see definitely wasn't so because there was one here and one there and you could hear the other explosions. And then they were saying it was just the homes with gas heat in it and others were saying that it was the possibility it was oil burners and then too, there were a few rumors about sabotage which we just discounted entirely. And then there were all sorts of different rumors going on about the number of people killed. At one time we heard there were seven killed and quite a few injured and then another time after that we heard there were four killed. It was awfully hard to know what to believe. There were so many conflicting stories.

The Post-Crisis Period

The majority of the people who had left the area returned to their homes that night. In the case of some of those who returned that night, only one member of the family, almost always the husband, stayed there to sleep. The rest of the family, for the most part, stayed with relatives. Some stayed away as long as four days, although in most of these instances someone in the family came back into the area to check and lock up the house and to pick up some personal belongings.

Especially on the part of the women, there was a great deal of reluctance to come back into the area immediately. Many felt an apprehension that "it might start all over again." The assurance of the authorities that the area was completely safe and that nothing could occur again was not completely accepted. Several women noted that before the disaster presumably everything had been arranged with regard to the gas so nothing could go wrong. But "it did, and in matters like this, how can one really know everything is all right now?" A number of women reported that what they were told about the safety of the area did not rid them of the strong feeling: "Any minute it might start again." One woman further said, "I felt no sense of security that night—there was the constant moving of equipment, electric drills going all night and there was that quivering feeling inside of you wondering, "Could there be another?"

Practically everyone interviewed reported various acute physiological reactions lasting for periods of several hours to more than a week following the disaster. One of the most widespread reactions was nausea. As one woman reported it:

> The next morning I probably was more shaky than even the night before....I had a trembling feeling inside of me

and I was very nauseated....I was so sick to my stomach the next morning that I didn't eat anything until towards night.

Another very common reaction was reported by one woman as follows:

I'll tell you just the way I felt—just as if somebody kicked me right in the stomach and I just couldn't straighten out and I had terrific pains in my stomach for two nights.

Most of the persons interviewed reported an inability to get much sleep. One person, who stated she was not able to sleep for three nights, added:

You'd close your eyes and see a house blowing up in front of you. You could see it every time you closed your eyes. There's another gone. That kinda pulled you up and you'd be awake for a long time, doze off and then hear fire sirens.

Similarly several persons reported unusual nightmares.

My son was shouting in his sleep. I couldn't tell what he was saying at the time but he said that he was dreaming that something was pushing down on him and he was trying to get away from it, and then when he tries to get away he runs into chairs and he just shouted out in the middle of the night.

Still other reactions reported were vomiting, hysterical crying, loss of appetite, headaches, inability to concentrate, feelings of weakness, or exhaustion, pains in the abdomen, and chills. These reactions were reported not only by those people most directly involved in the disaster (i.e., those whose homes were destroyed or damaged), but also by individuals who were only minimally affected. Likewise, people who lived on blocks where nothing had occurred reported the same reactions as those from streets where the destruction had been heaviest.

Children's overt reactions, as reported by their parents, appeared to follow adult patterns. There were some indications, however, that they did not last so long. Little difference was reported between the children who were in school and those of younger age who were at home during the disaster.

One of the most persistent emotional effects was a very high degree of nervousness, a tendency to jump or start at the slightest noise. In particular there was a hypersensitivity to any sudden noise which could in any way be taken as indicative of a possible explosion. As one woman stated:

Every time a door slams or you hear an unusual sound you jump and you look. You wanna know what's going on. Every little noise you hear you jump.

Another woman said:

> On Monday I was dressing to go out for dinner when I dropped my belt buckle and I go so scared that I almost jumped through the ceiling. My nerves were just ragged.

Similarly there was a strong sense of apprehensiveness that the same thing could happen again. Several women reported a very strong sense of uneasiness every time they had to cook something on their gas stoves. Others stated that they felt an impulse to check that everything was normal. As one put it:

> I would listen to hear if I could hear any unusual noises and....I would go down to the basement each night before I went to bed and twice during the night to see if I could find any accumulation of gas.

Other women reported that they felt much easier out of doors and some noted that they occasionally found themselves out of the house without any conscious awareness that they had wanted to go outside. One woman noted:

> I feel much better out of doors. You find yourself—and I'm not afraid now, not too much afraid—you find yourself breathing much freer if you're standing out in the backyard someplace.

Many people reported that one of the important factors which accounted for the persistence of their own emotional reactions was the sight of the wrecked houses. One woman stated she remained upset and could not put the disaster out of her mind:

> You're never left alone long enough to forget it, especially with the shell across the street staring you in the face every time you get up in the morning and go to bed at night. I think as soon as they could possibly get this thing settled and get some of these things torn down....and filled in—if you can erase the scars you know—that'll help—if they would just get that mess out of there and the sightseers would stop going around.

Similarly another person said:

> As I look out of my front window every morning and I see all that destruction it brings the picture back to my mind so clearly....I can't wait till they rebuild. Once they rebuild we forget....especially once they clean up everything.

Still another woman related:

> When I look outside it upsets me. To see all that damage....When you go out now you are heartsick. I think you wouldn't feel any better until all this is leveled off....after it's cleared off it'll be a little better.

There was some expression of grief over the two children who had been killed. However, this appeared to have been expressed so as to be in conformity

with community expectations rather than because of a real emotional experience. The exception to this was in two families whose children had played with those that had been killed, and those that knew the affected family personally. One such neighbor said:

> I was over watching them hunt for the M____ children who had been trapped in the basement of the house when it exploded. I stayed there until they brought up the body of the little boy....that was too much for me, so I left. I was becoming ill. The kids had just been over to our house the day before....I still keep thinking about those two poor innocent children. It could just as easily have been mine.

A considerable number of people reported feelings of gratitude over the numerous offers of aid they had received after the disaster. This was especially true of offers of assistance made to them by their friends rather than by the formal agencies of the community. The latter offers were more or less expected. In almost all cases, no aid of any kind was needed but there was a great deal of appreciation simply over the fact that offers had been made. As some people said it was at such times, "that you get to know who your friends really are." There was the added feeling that if one was really in need of assistance there were people that could be turned to for help.

Some resentment was expressed against those people who had become hysterical and had to have others take care of them. Speaking of a hysterical person, one woman said:

> What good was that doing? She was just tying up two or three more people to take her out of the territory that could have been doing something for somebody else if she had only shut up and let them go about their business.

Similarly, a man said about those who got hysterical that "it's up to them to do their part and not look for sympathy."

There was also some resentment against the sightseers which flocked to the area. One woman said:

> We're still a little overwrought and to see these sightseers just gawking in at every house just irks you a little bit— you know, it's the people you love and you just don't want them just Exhibit A.

Another woman said:

> All that traffic gives you a weird feeling and all. The most disgusting part about it all is the people coming with their cameras, taking pictures and gawking.

Still other people referred to the sightseers as "vultures" and "snoopers."

Outside of this the only other expressed general feeling of hostility was towards the gas company. A few people felt that they were to blame for the disaster and that they should take the responsibility. Most people interviewed, however, tended to blame no one in particular. There is some indication,

however, that this was more an outward expression of "letting bygones be bygones" than genuine feelings on the matter.

Besides the above post-crisis affective reactions there appear to have been several other lasting post-crisis effects. For example, almost everyone seems to have learned how to turn off the utilities in their homes. Many householders even bought wrenches so as to be sure they could make all the shut-offs that would be necessary. Some people, however, expressed their feelings that despite their knowledge they doubted they would be able to apply it. As one woman put it:

> Now I know where to turn off the gas, electricity, the furnace and the water. Ready for anything now....I don't know if I'd have the courage to go down there and turn it off or not. I don't think I would 'til the baby was out of the house and then I wouldn't come back in.

There was also a strong reaction against the further use of gas in the house. A number of women expressed their intention to have the gas replaced by electricity. Several women, in fact, had already made the change-over in their homes.

Several people noted that, to their own surprise, they stood up fairly well under the ordeal. Consequently, they felt much surer of themselves in case anything of a similar nature might arise. One woman who remained quite calm during the emergency noted:

> Then, too, I think if we ever were bombed I don't think I would be quite as nervous and panic-stricken as I thought I would have been before. Because I wasn't— I think I was fairly calm, maybe I wasn't; but Friday I thought I was fairly calm and I think it would be the same reaction if we were bombed.

RELIEF ACTIVITIES

Organizational Action

There was a considerable mobilization of formal and semi-formal disaster and relief agencies from the areas surrounding Brighton. Some units came from as far as 55 miles away and there was one unaccepted offer of aid from the city of Buffalo, even further removed. There was also considerable volunteered as well as requested help.

Over 500 regular police officers came to the disaster area. These included the men from the local Brighton force, reserves from Rochester, deputies from the sheriff's office, state troopers, and volunteers from the local forces in ten surrounding communities. There was no overall plan covering their recruitment or direction but all worked under the general direction of the Brighton police chief.

The local police first heard of the disaster around 1:10 P.M., when they were notified that there had been an accident at Twelve Corners. A radio car responded to the call and, upon arrival, immediately established that there

was trouble with gas. While the patrolman was putting in a radio call for assistance, the first house a few blocks away exploded. Very soon at police headquarters a flood of calls began to come in, reporting explosions and fires, asking for help, and requesting information. Realizing from the volume of calls the seriousness of the situation, the police chief at headquarters began to put through calls for non-local men and equipment.

Considerable fire equipment was also mobilized, some units coming from as far away as an hour's drive. In addition to Brighton's own three companies, there were 32 companies from Rochester and approximately 30 fire companies of volunteers from surrounding communities. These fire departments all operated under a Mutual Aid plan—a pre-established agreement which provides that each helps the other in case of fires of major proportion. At the beginning there was considerable confusion in dispatching the various non-local fire companies as they arrived in Brighton. One local volunteer fireman reported he was told "go and find yourself a fire; there are plenty of them." Only after a considerable length of time was a central headquarters set up in one of the local firehouses and operations directed from there.

The Rochester Red Cross had an arrangement with the fire department to be notified of disasters in the Rochester area. However, it was never officially told about the explosions in Brighton. The first news the Red Cross had regarding the explosions was a report that was heard over the radio. Two men were sent out to investigate. They called back and alerted the unit. One trailer and nine station wagons were sent into the area with a field headquarters being established at the Brighton Town Hall at about 2:30 P.M.

Over 4,000 sandwiches and a large quantity of coffee and fruit were distributed. In addition, Howard Johnson's restaurant was taken over and its facilities were used all night to feed the relief workers. A canteen truck was also sent to the school and about 100 children—all that were left by 5:00 P.M.—were fed. First aid stations were also set up, but, because of the relatively few casualities, they had little to do. Back at the Rochester Red Cross headquarters, 350 requests for minor assistance and approximately 440 phone calls for information were received and processed. Arrangements were also made that night for some of the people who asked for shelter to be sent to hotels. However, there were no problems of mass feeding, housing or evacuation. Red Cross officials complained that when the Civilian Defense organization was called out, they lost many of their key people who belonged to both organizations.

The police made requests for Civilian Defense workers over the regular commercial radio stations. Upon arrival in the area, the Civilian Defense workers were used to patrol streets, guard damaged properties and to direct traffic at street intersections. Many of them stayed on duty all night. Sampson Air Force Base, 55 miles distant, sent in 30 military police. These were dispatched on the initiative of the base commander. This initial contingent was later augmented by another truckload of 56 M.P.'s. Working under the general direction of the local police chief, they were assigned regular police duties.

A number of other agencies brought varying types of equipment into the area. The gas and electric company had its emergency trucks out checking on valves and main lines. They turned off the master gas main into the area at about 2:09 P. M. The telephone company had its workers set up two telephone poles with phones outside police headquarters. The Civil Air Patrol brought in cars equipped with two-way radios. The Brighton Highway Department sent

men and equipment to set up snow fences around the wrecked and damaged houses and to build road blockades. In addition, a number of other organizations such as the Salvation Army, ladies auxiliaries, veterans organizations, church groups, and civic organizations of various kinds aided in the relief activities.

Information Policies

From Rochester a sound truck was requested. It took an hour, however, before it arrived. When it did, the chief himself used it to go through the area telling the people to stay out of their houses and not to re-enter under any circumstance, to stay away from sewer projects, and not to worry about the children in the school because they were safe. It should be noted, however, that a considerable number of the residents who were interviewed reported they never heard any sound truck while they were in the area; others said they could not make out what was being broadcast since the truck did not go up their blocks. Prior to the arrival of the sound truck, some police prowl cars evidently did go into the area. They told people to get out of their homes. However, some people reported that such announcements as the continual yelling of "This is an emergency, this is an emergency" and the rather uninformative remark to go "find safe places to stand," left them in a very confused state. The constant wailing of sirens was also reported as being quite disturbing.

Police communications in a short time were handicapped by the fact that all electric power in the area was cut off. This left police headquarters without any electricity and unable to use the radio in the building. The State police brought a portable electric plant truck from Batavia, New York, 35 miles distant, but it took two hours to arrive. The power itself was shut off until around 6:30 that evening.

The radio, television and newspapers provided information to the residents of the larger community. Frequent news flashes and "on-the-spot" reports while explosions were still occurring were broadcast over the six radio and one TV stations in the Rochester area. Early broadcasts appeared to have been inaccurate and exaggerated. The male residents of the area, who had heard the first reports while in Rochester, said the broadcasts were contradictory and sensational. Residents who had left the area and were listening to the radio at their place of haven reported that incorrect reports on the number of casualties were announced and that the number and location of the houses that had been destroyed were also incorrectly given. One woman reported that:

> I wasn't even going to call my husband, his being in Syracuse, and I couldn't tell him anything about the house....Then we began hearing the reports over the radio and it sounded so bad. They told us one time 12, 13, 14 houses on this street were gone and I thought certainly our house is gone so I thought I had better call him....if he heard he'd be worried and not know where to find me.

Some of the inaccuracy of the reports that went over the air seems attributable to the procedures used in gathering information. One respondent stated that a radio newsman came to her during the early stages of the crisis. He asked if he could go into her house and use the phone, since she had an all-electric house. She said he could and went in with him. Then, according to the respondent:

> He called the station and said, "This is Tom. Are you ready Joe. O. K....Ladies and gentlemen you are about to hear an on-the-spot report of an eyewitness who lives across the street from the M____'s house which has just blown up." Then he turned and handed the receiver to me. I was never so surprised in my life.

Sometimes the information that came over the radio conflicted with what the listeners were experiencing. One resident of the area who was able to get to a radio said she heard a broadcast saying the gas had been turned off and the danger would soon be over.

> Yet I found this quite difficult to believe because I heard a number of explosions after that time. I think they were on the other side of Monroe Avenue.

Several people reported that, after they had left their threatened homes and had gone to the homes of nearby relatives, they had heard over the radio that an area of two miles from the disaster should be evacuated. This report caused some women to pack and move farther out. Yet no official evacuation order was ever given and none was ever broadcast. So far as can be ascertained, an evacuation order was merely mentioned as a possibility, but because it came over the radio it was accepted as an official instruction.

Inaccurate reports also went out to the nation at large. About an hour and a half after the disaster, hundreds of calls started to come in to the police. They came from such distant places as California, Florida, Ohio, South Carolina, and Alaska. Most of the callers were badly misinformed in regard to the extent of the disaster and the number of casualties, believing it was much worse than it was. Most queries were in regard to who had been killed and injured and what homes had been destroyed. The police were able to give this information to most callers, for even while explosions were still occurring one man had been detailed to make a survey of the area and to draw up a master list of casualties and homes destroyed. The listing evidently was not complete, however, for even the next day press reports still contained misinformation in regard to location of the houses that had been affected.

The relief workers themselves appeared to have been responsible for some of the inaccurate information and rumors that circulated, especially in the period immediately following the disaster. One such rumor was that homes were being looted. One woman stated that she was told of the looting by a policeman who told her to stay by the house and watch the back doors. Another woman stated that the police told her father to stay by his house that night to protect it from professional looters who would be around. According to the police chief's own statement, however, not a single case of looting was reported. There was a tendency for people to accept any information passed on by officials as completely authentic. One man stated:

> I got most of my information from the policemen....I took their word for it. I thought if anybody knew the policemen would.

In general, relief activities were marked by a lack of coordination. There was no central disaster headquarters and most organizations worked independently of one another. At times, this led to considerable duplication

of effort. A number of people reported, for example, that as many as seven individuals came into their house to be sure that the gas was turned off. Similarly, the lack of coordination led to the dissemination of conflicting information. Some people who had left the area were told they should return to their homes and then, when they got to the edge of the area, the guards at the roadblocks told them it was not yet safe and would not let them in.

Efficiency of Rescue Operations

After the disaster, the residents of the area almost unanimously praised the activities of the relief organizations. A typical expression was that "they did a wonderful job and did everything that could be done." Several people who left the area remarked that the firemen must have done a particularly good job, because when they fled the area they did not think anything was going to save their homes. Others remarked that it was a reassuring sight after the disaster to see that the streets were heavily patrolled. As one woman said:

> If you could sleep, that helped a little bit--to know that all those homes were being protected.

Many people were impressed by the large turnout of relief units and equipment and the fact that much of it came from a considerable distance. Several people noted that they had not realized before how well the area was prepared to handle a disaster. One woman noted:

> It has opened my eyes to one thing--that Rochester is much more alert than I thought it would be because I didn't realize they had the organization and control and all the help that they had.

Few seemed to understand that the mobilization of equipment and organizations had stripped the region around of almost any protection and this for only a relatively focalized disaster. Only one man was overheard remarking that, "If there was that much confusion and fear when only two people were killed and where they were swamped with all kinds of equipment and services, what would they possibly do if an atom bomb struck and ten thousand times that many people were killed and injured and all the services and equipment were destroyed."

SOME GENERAL INTERPRETATIONS

The preceding sections of this report have given a somewhat detailed descriptive account of the social and psychological reactions of the population to the disaster. In this section an attempt will be made to present some of the more general, analytical findings of the study and to interpret them within a framework that may permit comparison with other disaster events.

1. So far as the affected people were concerned, two of the outstanding features of the Brighton disaster were: (a) a strong sense of being endangered, and (b) an inability to chart a subjectively-satisfying course of action during the crisis. The residents

of the community felt themselves threatened but, for the most part, were unable to perceive a satisfactory mode of coping with the threat. A great many of the reactions of the persons during the crisis period can be understood in terms of one or the other of these two features.

a. People in the disaster-struck area had a strong sense of personal or bodily danger. Many of the women in the area were immediately and directly confronted with the threat of bodily harm and their immediate behavior was oriented almost completely in terms of self-preservation. The complete preoccupation with self-survival usually lasted for only a relatively short time (e.g., until they had escaped from their houses and joined other neighbors in the street). Because of the continuation of the threat, however, the concern over self-protection remained fairly strong during the whole period of the crisis.

This orientation in terms of personal survival and the protection often led to the abandonment of a number of the social norms which usually guided these persons' behavior—e.g., the concern for persons other than primary group members, and the concern over material goods. The behavior patterns of the persons in the immediately threatened area generally followed the following sequence:

(1) Action oriented in terms of self-preservation or protection

(2) Action oriented in terms of immediate family group members (e.g., children)

(3) Action oriented in terms of other primary group relationships (other kinship members, close friends in the neighborhood, etc.)

(4) Action oriented in terms of material goods or possessions

(5) Action oriented in terms of secondary group relationships (e.g., other members of the community, formal organizational [illegible]).

The lack of concern over material possessions was a particularly characteristic feature of the behavior of the residents during the crisis period.

One of the general principles which may be derived from a study of this and other disaster situations is that any perceived threat to an object closely identified with the self or personality will be felt as a threat to the self. Psychological or ego-involvement does not necessarily correspond with physical or spatial involvement in disasters. For a number of residents of Brighton, the danger was not seen so much as a threat of bodily harm as a threat to persons

closely identified with one's self. Thus, the husbands and fathers of persons in Brighton felt endangered when they heard of the disaster, even though they were physically and spatially removed from the scene of the disaster. They were very strongly involved psychologically because of their close identification with their family and other primary group members who were in the danger area.

b. A second crucial feature of the present disaster was the inability on the part of the residents to arrive at a self-satisfying course of action to be taken during the crisis. The disaster constituted a violation of certain basic social expectations. It shattered a number of the relatively stable norms which enable individuals consciously or unconsciously to direct their behavior. It is ordinarily taken for granted, for example, that the ground on which one walks will not erupt or that homes will not suddenly explode. Such normal assumptions, in the present case, were to a considerable degree shattered. People were confronted not only with a dangerous situation but also a situation in which many of their usual expections no longer applied. Houses were exploding all around them and the ground itself was thought to be unsafe. There was the need for re-defining or restructuring the situation so that they could mobilize their action to reduce or cope with the threat.

In this case, however, the difficulties in arriving at a satisfactory definition of the situation were especially compounded because of the unpredictability of the explosions. The affected people could discern no patterns to the explosions; they seemed completely random and haphazard. In order to direct his actions, an individual must have certain stable reference points; he must, with a fair degree of accuracy, be able to predict what will occur to the object toward which he is directing his behavior. In Brighton, the seeming irregularity and random character of the explosions prevented any such predictions and hence most persons experienced feelings of great uncertainty and helplessness.

In many disasters, and in all to some extent, there is a breakdown in the predictability of what other human beings in the situation will do. This appears to be more frequently characteristic of disaster situations than the breakdown in the predictability of physical objects. One of the peculiar features of the Brighton disaster, however, was the great instability and erratic action of the physical objects. Material substance began to behave in a totally unexpected way. Moreover, because of a lack of pattern, there seemed to be no way of forecasting how they would behave in the very immediate future. The irregularity of the explosions greatly contributed to the inability of the populace to define the situation clearly. For most of the affected people, the situation was never more than partially defined. It was defined to the extent that the situation was seen as dangerous, but not to the extent that a course of action which was

deemed completely appropriate ever emerged. The uncertainty and confusion remained a problem for almost the entire duration of the crisis.

2. Most explosive disasters are of the instantaneous type—i.e., they occur immediately, without warning, and contain the elements of surprise and shock. Because they occur unexpectedly, the populace is unable to erect adequate physical, psychological or social defenses. The Brighton disaster was unexpected. The residents of the area had no prior indication that the normal routine of life on an ordinary weekday afternoon was going to be disrupted. The disaster taken as a whole, however, was not of the instantaneous type. In most peacetime explosion-like disasters there is one instantaneous blast. The social and psychological adjustment, therefore, is basically oriented to a danger that is already past. In Brighton, on the other hand, with its series of explosions extending over a two-hour period, the danger was defined in terms of future happenings. Hence, it required social and psychological adjustment to a future danger, rather than a danger already past. In this sense, the Brighton disaster more closely paralleled the type of experience that a community might face during wartime (e.g., aerial bombardment) than is true of most peacetime instantaneous disasters.

Although the disaster was not a purely instantaneous disaster, neither could it be classified as a progressive type of disaster, as is typified by most flood situations. In progressive disasters, the community and individuals usually have considerable forewarning. There is a gradual buildup of the threat; the danger exists in the future, and there is the possibility of minimizing the destructive and disorganizing force of the disaster because persons are able to erect at least some physical, social and psychological defenses in preparation for the crisis.

The Brighton disaster actually represented a combination of both the instantaneous and the progressive type of disaster; it combined some elements of each basic type. As in the case of a progressive type of disaster, the threat appeared primarily in the future; but, as has already been indicated, the disaster was of such a nature that it prevented any satisfactory adjustive behavior on the part of the affected individuals. The residents were able to do little in the way of erecting subjectively-satisfying defenses against the crisis. Furthermore, as in the case of an instantaneous type of disaster, the precipitating event occurred without warning and was completely unexpected; hence, it maximized the elements of surprise and shock. Generally speaking, therefore, even though the threat was continually in the future because of the time span involved, the social-psychological consequences were more comparable to those that follow upon an instantaneous type of disaster.

3. Under conditions of stress, there is a tendency for perception and attention to be narrowed and focalized—with each person defining the situation almost solely in terms of the objects which are immediately perceivable. This tendency can be noted in the initial reactions of the persons in the disaster-struck area of Brighton. Each person tended to interpret the nature and extent of the crisis in terms of his immediate surround-

ings. "It was my gas in my house," was a typical expression of this tendency. The mass exodus from the houses was, for the most part, a result of the convergence of individually-formulated definitions of the situation. Many people in their houses at the moment of impact defined the situation as dangerous and, acting on their fear impulse, left their homes. It was only after these individual escape actions had been taken that most persons realized that the event was more than just a localized accident confined to their own homes. Once outside, such persons came to realize that their escape action had not relieved the danger; rather, they found themselves confronted with a further and more extensive danger situation. Houses were exploding all around them and the eruption of the very ground on which they stood presented itself as a definite possibility. As has been pointed out, the mode of coping with this further threat was not immediately clear; hence, the situation produced feelings of great fear, uncertainty, and helplessness.

4. As is generally true under such circumstances, individuals began to interact with one another. Although their initial escape actions from their homes were, for the most part, the result of individual effort, the later reactions can only be understood in terms of the collective behavior that occurred when persons came into contact with others in the disaster-struck area. When their own individual efforts (e.g., running from their house) failed to bring about the desired goal of safety, most people turned to others for support and assistance. This is quite typical of crisis situations. With the occurrence of an exciting or dangerous event and the breakdown of the usual social expectations, elementary collective behavior tends to emerge; when the established or expected ways of acting are disrupted, persons consciously or unconsciously seek guidance from others. Thus, in Brighton, the residents of the various houses began to converge and congregate in the streets. As they milled around, crowd-like behavior began to take form. Under conditions of stress and danger people become highly sensitized to the actions of others. Each person's behavior became the reference points which partially mobilized the actions of every other person.

At least three different types of collective behavior emerged out of the numerous, but separate, small milling groups scattered in the streets and lawns throughout the affected area.

a. By far the most common activity that emerged out of the interaction of members of milling groups was a type of withdrawal behavior. As people talked over the event among themselves they would decide that some particular location, such as a backyard or the lawn in front of an all-electric house, was a position of relative safety. On the basis of the group consensus they would then move to those places. Even for most people who acted in this manner, however, the situation remained somewhat uncertain and unsatisfactory, for there remained the feeling that another course of action possibly might be more appropriate.

b. Some people gave vent to their fearful and helpless feelings in expressive, almost hysteria-like actions. As they milled, the collective excitement was intensified and the reinforced "not knowing what to do" feeling was vented in unrestrained physical movements. Such people wanted to act in some way, but they were unable to mobilize their action to deal directly with the threat. They defined the situation as dangerous, but they were not able to arrive at an individual or collective definition regarding the course of action that should be followed. The evidence suggests that this expressive type of crowd behavior occurred in only a few isolated instances and apparently lasted for only a brief time.

c. Other small groups which milled in the streets collectively defined the situation as highly threatening and something which required escape action or flight. They came to feel that they might be trapped by what was going on around them. Out of the interaction of such excited people, panic flight sometimes followed. Such collective panic, however, was quite rare as compared with the initial mass or individual panics which followed upon the individual discoveries that one's own house might momentarily explode while one was still in it. As is indicated in paragraph 4 a. above, by far the most common result of the interaction in the small milling groups was a sort of planned withdrawal to areas which were collectively defined as less dangerous.

Although people engaged in crowd-like behavior, it is to be noted that all critical judgment was not lost. People talked over the merits of moving from one place to another. They discussed the advisability of fleeing from the area altogether. There was a tendency to respond rather quickly to some suggestion of action on the part of others, but, on the whole, people remained somewhat discriminating--taking into consideration various aspects of the situation as they saw them. From the point of view of personal safety, the only objectively maladaptive behavior was the re-entering of the houses. In most cases this was done in order to obtain car keys which the resident had left behind. But for the people who engaged in such an action, it was an adaptive, rational response, for it was felt that by obtaining the car keys they would be able to drive out of the area and thus remove themselves from further danger more quickly.

While there was much confusion and considerable social disorganization, there was nothing approaching a complete breakdown of the whole social structure of the

community or the neighborhoods. Similarly, there were only a few cases of rather complete personal disorganization. Only in some extreme cases of hysteria-like behavior was there activity of an almost wholly uncontrolled nature. The evidence indicates that this behavior, for the most part, was short-lived; it tended to be present only during the height of the crisis period.

5. As people milled they circulated rumors. This was true not only of those people who were in the scattered small groups in the immediate disaster-struck area; rumors were also circulated by those people milling in the crowds that had quickly gathered at peripheral points--particularly at the road blocks that barred entrance into the disaster area.

The initial rumors that circulated in the immediate disaster area seemed to be about objects outside the area itself, particularly with what had happened to the school and the children. As the mothers observed the houses exploding and catching fire around them, they became concerned that the nearby school might also have been affected. They talked over the possibility but, lacking any definite information, they grasped at anything anyone said in regard to the school. On the other hand, there appeared to be few rumors about the cause or the nature of the explosions themselves. People had rather quickly established that gas was the cause of the explosions which they heard and witnessed. They had no need to speculate for they thought that they had the facts, as they actually did.

At the peripheral points, on the other hand, the rumors were about what had happened or was happening in the area. Persons who were at the periphery were concerned with the causes of the explosions and with the number of casualties that had occurred. The breakdown of routine communications into and out of the area left a void in the information being sought by kinfolk who were strongly involved psychologically with those still in the danger area. Rumors were the only primary source of information available to them at the time. Moreover, the initial reports which most of these people had heard from others or from radio reports were of such a vague nature as to allow almost any interpretation; or, they were so sensational and anxiety-arousing as to lead to attempts to ascertain more details.

Unfortunately, the officials or relief workers who were manning the roadblocks either could supply no information or merely passed on some confused or vague statements which lent credence to the already circulating rumors. The very prestige of such official workers, in part at least, probably accounts for the continued circulation of some false reports. When persons in an official position--persons who supposedly know the objective facts of a situation--seemingly support what the rumors are asserting, interested and concerned persons tend to accept the rumors as true.

In the present case, there are three possible reasons why officials and relief workers passed on misinformation about what was happening in the area: (1) They were being pressed by worried citizens for precise and specific information which they did not have; as people in authority they might have felt that they should know and that their status and prestige would have been lowered if they appeared not to have the requested informa-

tion. (2) Some of the official workers probably communicated false reports which they had acquired from others and which they accepted as true. (3) Finally, it would appear that some misinformation, especially about the danger in the area, was intentionally communicated to discourage the inquiring person from entering the area.

IMPLICATIONS FOR DISASTER PLANNING

An analysis of the foregoing data suggests a number of implications bearing on the problems of disaster preparedness or planning. The following recommendations have grown out of analysis of the problems presented by the Brighton disaster. These recommendations should be viewed as tentative and subject to revision, qualification or extension on the basis of further investigation.

1. This disaster re-emphasizes the need for a specific pre-rehearsed course of action to be taken immediately after the impact of a disaster. Education of the populace in the form of general admonitions concerning the course of action to be taken in the event of a disaster is ineffectual. These admonitions are often recalled after the disaster event; but they usually prove of little value during the event, since they presuppose the existence of the power of critical judgement—and it is precisely this power which is most likely to be lost or reduced in a situation of extreme stress. An example in the present case is the Civilian Defense warden who failed to comply with any of the instructions which she had learned in a recent course. In order to be incorporated into automatic, habitual responses, the desired type of behavior must be repeatedly rehearsed and drilled. The orderly evacuation of the school and the calm reaction of the children who thought it was simply another fire drill well exemplifies the value of such training for times of disaster.

2. If people are supposed to be able to handle the utilities in their homes during a disaster, three factors need to be taken into account. (1) They must have knowledge of the location of all the shut-off valves and switches. (2) They must have at hand the equipment, such as wrenches, which would be necessary to make the shut-offs. (3) They must have some experience in making shut-offs, because shortness of time is frequently a factor and a person cannot stop to read instructions. The absence of any one of these factors—knowledge, equipment or experience, as the evidence from Brighton indicates—may negate the efforts of the most willing persons. Individuals must be taught where the shut-offs are in their homes, they must be given or made to get the appropriate equipment, and they must practice what they might have to do until it has become a semi-automatic process.

3. In training people to meet disasters, it would seem wise to take into consideration the varying sex distribution of a given

community at various times during the day. The disaster struck Brighton when almost no men were present; the population was overwhelmingly female. Such a daytime sex distribution, while generally to be found in almost any residential area, is especially typical of a suburb. It thus would seem necessary to train more than the male members of a family in such things as how to turn off the utilities, or how to fight a chemically-ignited fire. Only the women, as was the case at Brighton, might be present and directly available to deal with the immediate aspects of a disaster.

4. In this disaster those people who felt some responsibility for others tended to remain calm and, in general, maintained a high degree of self-control. This was true whether the person was playing a somewhat formal role (e.g., the school teachers with reference to their pupils) or a somewhat more informal social role (e.g., the mothers with respect to their children). If people can be trained to feel they are responsible for others, that it is their job to see to it that others are taken care of, there will be less personal disorganization and fear-provoked behavior. It would seem particularly pertinent that formal leaders (e.g., air raid wardens) be especially impressed with the fact that they have a responsibility, that others will be depending on them. A core of such people, because of the fact that they have greater self-control, would probably be able to provide some leadership and thus lessen the degree of social disorganization that usually follows a disaster.

5. What happened at Brighton again emphasizes the need for having certain disaster equipment available close at hand. One of the foremost needs during this disaster, as attested to by remarks of both officials and area residents, was the need for portable loudspeakers and sound-truck. During the whole crisis period, apparently only a few sound-trucks or loudspeaker systems could be mustered and used. Yet in almost any disaster of any magnitude such equipment is vital for the rapid dissemination of information, the control of crowds, and the direction of rescue and relief work.

Furthermore, at Brighton, police communications were crippled by the fact that the electric power in the area was shut off and it took several hours before an electric generating truck could be located and brought to the scene. This difficulty was partly circumvented by the use of two-way radio cars, but there were not enough of them and considerable time elapsed before others could be brought in from outside communities and agencies. At the moment of greatest need, part of the communication system failed and valuable time was wasted in getting substitute means.

In the light of this, the equipping of disaster agencies with portable power and communication units would seem advisable. Because of the costs involved, rather than equipping each local community, it may be advisable to locate the units at a mutually-shared, central storing point in each region. However, such points should be located so that each local community could get whatever equipment it needed—

be it a generator truck or portable loudspeakers--within a period of one hour or less.

6. This disaster was marked by considerable confusion in the mobilization and use of disaster and relief units. Save for a Mutual Aid Plan among the regional fire departments (which partially broke down because of a lack of a directing headquarters), there existed no over-all plan by which the various organizations could coordinate their activities. Most agencies simply functioned independently of one another. There was no central disaster headquarters and no unit or official had general control over disaster operations.

To prevent the occurrence of the type of confusion that prevailed at Brighton, it would appear useful to have a master plan. The plan should be specific and detailed. It should specify who should have overall control of the emergency mobilization of men and equipment. It should designate who would be responsible for setting up a central disaster headquarters and what authority the designated unit or official would have. Probably such a plan could be set up so as to utilize already existing limited and partial arrangements and informal understandings that are to be frequently found among the official and semi-official agencies of most communities.

The master plan should also take into account the fact that a major disaster will strip protection from communities for miles around. The Brighton disaster utilized all the organized and semi-organized disaster and relief services of the entire community and a major part of those of other communities within a 40-mile radius. A master plan should take into account the possibility of simultaneous disasters and the necessity of not denuding any large areas of all protective services.

7. The master plan should also take cognizance of the problem of dual or even multiple membership of persons in official relief organizations. Such multiple membership may prove a severe handicap in mobilizing the relief agencies for a disaster. When the Civilian Defense organization at Brighton was called out at the same time that the Red Cross was proceeding to alert its units, the latter organization lost important key members to the former organization. They could not function as efficiently with the loss of such members. Either individuals have to be prevented from joining organizations which may come to operate at the same time or, as would seem more appropriate, individuals should not be allowed to hold important posts concurrently in two such organizations. If a disaster unit is to function efficiently, it must have all of its key members. Perhaps for people with dual or multiple membership a priority system could be set up. Depending on the nature and extent of the disaster, organization members could be told to work with one organization or another. This, however, would not be applicable in a disaster of major magnitude, where all the relief services have to be utilized to their fullest extent.

8. At Brighton, as is typical of most large disasters, the telephone lines soon became jammed because of the volume of calls made. The mobilization of relief units was partially hindered by this fact. It would seem imperative immediately upon the realization of a disaster that certain lines be designated purely for official use. Top priority should especially be assigned to long distance calls for outside assistance. While no harm can come from admonishing people beforehand not to use the phones during an emergency period, the evidence demonstrates that this normally has little effect. The concern of people for one another is so great that they will try to communicate with one another. Any attempt to block completely such attempts to contact one another probably would be psychologically much more harmful than useful.

Relatively soon after the news of a disaster gets out to the larger community or the nation at large, there is usually a flood of calls into the community. This was the case at Brighton. Callers contacted a multitude of agencies in an attempt to get information about residents of the area. It would seem worthwhile, if it were possible, to channel all such calls to one central point. At that location there should be a master list containing such information as callers are usually interested in—e.g., the names of those killed or injured, or where certain people can be reached. Such a procedure would save many organizations considerable time and effort which could be expended more efficiently in dealing with the immediate local situation.

9. There is a tendency at a time of disaster to place great reliance upon radio broadcasts. Officials conceive of it as a channel for getting information to people and the public, in turn, likewise think of it as a source of knowledge about what is occurring and what they should do. There are several dangers inherent in this, as the evidence from Brighton attests.

The people immediately affected by the disaster often cannot be reached by radio. The power in the area might be cut off, or the people might have no access to a radio receiver. They must be reached in other ways. The use of sound trucks has already been suggested (see paragraph 5 above). The possibility of using sound-equipped helicopters might be investigated. They have the extra advantage that they would not be hindered from entering an area because of wreckage-strewn roads or collapsed bridges.

There is a tendency for people to accept as official anything that is broadcast over the radio during a time of disaster. At Brighton isolated and completely unofficial remarks on the radio about an evacuation possibly becoming a necessity were taken, in a number of instances, as a direct official order to leave the area. This would seem to indicate the necessity of getting the cooperation of radio stations during a disaster and having them limit what they transmit. It would seem especially important that a distinction be made between official announcements and news reports or commentary.

10. Disasters frequently cause traffic problems and traffic congestion. At Brighton the men coming from Rochester blocked the main road. It would appear to be of some importance to keep main traffic routes free for the movement of disaster units. This can be done through the use of roadblocks. However, the roadblocks should be established a considerable distance from the edge of the disaster area. This would prevent an amassing of men and vehicles at the edge of the affected area where they are more likely to hinder the operation of relief units. Furthermore, the people manning the road blocks should be given instructions to direct people who are seeking information about their families to a central information point. This central point of information should itself be located away from the main arteries leading into the disaster area.

11. A considerable proportion of the rumor circulation at Brighton, especially at the peripheral areas, seems attributable to the activity of officials. It is imperative that police officials, relief workers, and other authorities who work in disaster-struck areas be instructed that under no circumstances are they to pass on any information they deem might be purely rumors. By having officials refrain from repeating them, the spread of rumors can be minimized. Individual officials can also help check rumors by making plain to the carrier of a rumor the implication of his talk and by questioning and insisting upon verification and proof. A rumor stopped at any point can be of great significance in cutting short its network-like spread.

12. There was much duplication of effort at Brighton in the process of checking homes to be sure that the gas valves were turned off. Each relief worker had nothing to indicate to him that someone had already been in a house and had made it secure. This would seem to suggest that if houses have to be checked for some purpose, the workers who engage in such activities should be supplied with tags or stickers which they could use to indicate when a particular house has been inspected. By so marking the buildings that have been inspected, another worker could tell at a glance whether or not there is further work to do.

13. At Brighton a sense of psychological security and the feeling that the crisis was at an end came about when families were reunited or when each member knew that every other one in the family was safe. It would appear imperative that families be reunited or be placed in contact with one another as soon as possible. If people are evacuated from an area and brought to a particular collection point, this would not be too difficult, for everyone interested could be referred there.

If a disaster occurs while the children are away at school, it is of considerable importance that the mothers be notified as soon as possible of the fate of the school. The evidence gathered at Brighton seems to indicate that the primary concern of the women was for the children who were attending the schools, and that this was largely

responsible for many of the rumors that circulated in the immediate disaster area. Once it was established that family members were safe, there was a considerable diminution of anxiety.

14. The authorities need to give strong and frequent reassurance to the residents of an evacuated area that it is safe to re-enter. In this disaster, many residents were reluctant and afraid to go back into the area and, even when they returned to their homes, they still remained uneasy and apprehensive that the danger from future gas explosions was not over. Official announcements about the safety of the area were apparently not convincing. They were not repeated often enough and they were not as forceful as they should have been.

In connection with this need for reassurance, mention might be made of the popular conception of radioactivity following upon an atomic bombing. If people are forced to leave their homes and their area because of such a bombing, many of them will need considerable assurance that the home and area will be safe to re-enter. Such assurance, however, might not be enough; there should be widespread dissemination of accurate information beforehand about the limitations to the danger from radioactivity.

It would also seem wise to inform people that acute physiological reactions are normal reactions after any major subjection to stress. Here, again, popular conceptions of radioactivity and of biological warfare might lead to completely unwarranted interpretations of to-be-expected symptoms after a stressful experience. The realization that what is being experienced is not unusual will aid in preventing the arousal of totally unjustified anxieties.

15. Many people at Brighton attributed part of their sustained emotional reactions to the sight of the destroyed and damaged houses. They were continually reminded of the disaster and the fearful experiences they had undergone during the disaster. This suggests that as soon as possible after the disaster as much of the wreckage and debris as possible should be removed. If the damage cannot be immediately erased, at least some effort should be made to clean up as much of the debris as possible.

16. One of the few objects of resentment at Brighton was the sightseers who came into the area. They further disturbed the already overwrought residents. In view of this fact, it would appear advisable to bar curiosity seekers from an area that has undergone a disaster. This would probably necessitate the maintenance of roadblocks. However, it is doubtful that they would need to be maintained for long because interest drops off rather sharply after a relatively short time, especially if the disaster is no longer in the news.

Appendix B-3

Report on the West Frankfort, Illinois Mine Explosion, December 21, 1951

REPORT ON THE WEST FRANKFORT, ILLINOIS MINE EXPLOSION, DECEMBER 21, 1951

INTRODUCTION

At approximately 7:30 P. M. on Friday, December 21, 1951, an explosion occurred in the New Orient No. 2 coal mine at West Frankfort, Illinois. The explosion killed 119 men. Only five men in the immediate area of the blast survived. One of these died one and a half days later.

The following report is based upon an analysis of 18 formal interviews and 10 informal interviews obtained by members of the National Opinion Research Center's Disaster Research Team. These interviews were obtained nine days following the explosion. The interview material is supplemented by local and national newspaper accounts.

In view of the relatively small number of interviews, the findings which are reported should be viewed as tentative and suggestive, rather than final or conclusive.

The Community Affected

The New Orient No. 2 mine, the world's largest pit coal mine, is located about three miles north of West Frankfort, Illinois. The mine covers a twelve mile area and employs about 1,100 men in two shifts. Its main elevator shaft is 535 feet below the surface. The mine is 27 years old and produces about three million tons of bituminous coal a year. The mine holds the record yield of coal mined in one eight-hour shift—15,385 tons.

The community of West Frankfort, where most of the employees of the mine live, had a total population of 11,384 in 1950. As is characteristic of many mining communities, the population has been declining in recent years. The total population has declined approximately 21 per cent since 1930 and 8 per cent since 1940. In 1940, about 90 per cent of the total population was native white. There are no Negroes in the community, and statements made by the respondents interviewed indicated strong feelings of racial antagonism. One respondent stated: "A Nigger can't stay all night in this county. He can walk the street but he has to be out of town by night, because none of the hotels will put him up." The foreign-born population is composed of small groups of Italian, English, Polish, Lithuanian, Hungarian, and Finnish persons, and they appear to be been generally accepted and integrated into the life of the community. One of the community leaders stated: "The foreign people are all Americanized. They are the better class of foreigners."

Mining is the community's major industry. In addition to the New Orient No. 2 mine, there are 6 other mines in the immediate area. One person out of every three gainfully employed works in the mines. Except for a small dress factory and a concrete factory, which employ a few individual workers, all the other gainfully employed are in the service industries. Only 20 per cent of

the women over 14 years of age are employed, indicating that the occupational force is predominantly composed of men.

Nature of the Disaster

At 6:30 P. M. on Friday, December 21, the 218 man night shift at the New Orient No. 2 mine went to work. They were the last miners scheduled to work before Christmas.

At 7:32 P. M., approximately an hour after the night shift had entered the mine, an explosion took place. The blast occurred in a section of the mine located about one mile north and a mile east of the No. 4 shaft, which is located half way between West Frankfort and Benton, Illinois. The blast was about three miles from the main shaft.

The force of the blast was considerable. Three thousand pound coal cars were piled up in certain areas. Eight-ton motors were derailed in others, and heavy mine equipment as far as two miles from the blast's center was wrecked. The explosion also caused a considerable number of rock falls throughout the area.

The blast killed miners as far as two miles apart. Most of the men probably died instantly. Death was caused in at least three ways:

1. Being burned alive by the intense heat. The created heat was so intense that small quantities of coke were formed on the face of the coal in numerous places. Many of the bodies were badly charred.

2. Being decapitated and dismembered by the force of the explosion and from flying debris. These bodies were badly mutilated. Fingerprints were needed to establish correct identity in some of these cases.

3. Inhaling carbon monoxide from the resulting combustion in the atmosphere. Some of the miners who died from carbon monoxide inhalation did not die instantly. In at least one case, a trapped group lived nearly 50 hours after the explosion. One of the five survivors was in this group. He was rescued 57½ hours after the explosion.

At the time this report was written, official investigations into the cause of the explosion were still proceeding. A preliminary report and the general consensus of expert opinion indicated that the explosion was caused by the ignition of methane gas which had accumulated in the mine. According to a report by the director of the U. S. Bureau of Mines, the gas probably was ignited by an electrical spark from air pumping equipment, and the explosion resulted from a combination of gas and coal dust. However, cigarettes and matches found during the rescue operations were also given as a probable source.

Methane gas, which is produced by decaying vegetation, is normally found in mines. Accumulation is prevented by proper ventilation of the mine. The New Orient mine under normal conditions is reported to produce 2,137,000 cubic feet of the gas each minute. It is a highly explosive gas that has an expanding force 27 times its original capacity. Coal dust is also a normal product of the mining process and is also combustible and explosive. It especially will spread a minor explosion to distant points. It is usually controlled by dusting the mine facings with chalk.

Prior to the explosion at the New Orient mine, reports by the Federal and State mine inspectors presented a conflicting picture of safety conditions at the mine. As late as December 11, 1951, a State mine inspector described the ventilation in the mine as "good" and other conditions as "fair." However, in July, 1951, two Federal inspectors found 31 violations of the U. S. safety code, which is stricter than the State code. Most of the violations were reported as minor; but some were of a nature, their report said, to "indicate serious hazards similar to those that have caused heavy loss of life or destruction of property." The major recommendation by the Federal inspectors was that the abandoned workings be cross-ventilated.

The Frankfort mine disaster was the worst in the nation since the explosion at Mather, Pennsylvania, in 1928, killed 195. In fatalities, it ranks as the 17th worst in the Nation's history. There have been 24 mine disasters in the United States which have resulted in more than 100 deaths. Twenty of these have occurred since 1900. The Frankfort disaster was the worst in Illinois since the Cherry Mine disaster of 1909 which killed 259. The most recent big mine disaster in Illinois was on March 25, 1947, in Centralia, when 111 men died in a similar explosion.

RESCUE AND RELIEF OPERATIONS

Rescue Teams

The rescue work in the mine was spearheaded by 10 organized, specially trained, State mine rescue teams. These State teams are composed of a mine rescue superintendent, who is a full time employee of the State of Illinois, and six men who work under him. The latter are regular miners who practice their operations and test equipment one evening each week. Each man is equipped with a large oxygen tank and pump which enables him to work in parts of a damaged mine which otherwise would be inaccessible. The sole duty of these State teams is to save lives and restore ventilation in the mine so that the volunteer workers can do their jobs.

The nearest State mine rescue team had its headquarters at Benton, Illinois, which is approximately six miles from Frankfort. The superintendent of this team was called at 7:45 P. M., a few minutes following the explosion, by mine officials. Shortly after 9:00 P. M., the team was assembled with their equipment and entered the mine. Prior to the entry of the State team, according to the statement of one mine foreman, several rescue teams, informally organized by the mine company, were sent into the mine, and their rescue efforts

were somewhat sporadic and unorganized. The hasty recruitment of these teams probably resulted in some initial confusion in the rescue effort. With the entry of the State teams, however, the rescue work became efficiently organized and directed. The other State teams were called in from all over the State of Illinois.

These official teams were supplemented by volunteer teams who followed the State teams and recovered the bodies of the dead. Shortly after the explosion, several hundred miners went to the mine head or phoned the mine to volunteer their services. There were many more volunteers than could be used for the rescue work. The recovery of the bodies was delayed by the necessity of restoring fresh air courses in the explosion area by the official teams. This had to be done before the volunteers could penetrate the sections of the mine in which the blast occurred.

The rescue teams found 119 bodies and five live miners, one of whom died one and a half days later. The first body was found at 5:48 A. M., on Saturday, December 22, approximately 10 hours after the explosion. The last body was not recovered, however, until four days later, on the morning of Wednesday, December 26. Because the bodies often had to be carried a distance of four or more miles to the elevator shaft, the task of removing them was extremely difficult and time-consuming. The difficulty was increased by the large number of rock falls which blocked the passageways. However, the recovery appears to have been carried out with as much efficiency as possible under the circumstances. The victims were removed in relays, with one team of four men carrying the litters for a short distance and then turning it over to another team of four, etc.

Management of Dead and Injured

When the bodies were brought to the surface they were taken by ambulance to the Central High School gymnasium in West Frankfort, which was established as a temporary morgue. There the bodies were identified, after which they were released to the funeral directors designated by the families of the dead miners. Identity in most cases was readily established by the miner's check numbers, which are found both on the metal tags which each miner wears and on their mine safety lamp. In the case of a few bodies which were badly mutilated, identity was established by fingerprinting. This was carried out by a fingerprint expert sent from St. Louis by the American Red Cross.

The considerable length of time between the notification of the explosion and the arrival of the first survivors and victims gave the community plenty of time to prepare for the reception of the dead and injured. Although there was no officially-designated coordinator for the relief work, the local police chief took over the job of alerting the various official agencies, establishing communication by radio between the mine and police headquarters, and controlling the traffic between the mine and the temporary morgue. Within two or three hours after notification of the explosion, the hospital, doctors, and nurses were alerted; the local National Guard ordnance company was called in to assist in the setting up of a morgue (including the collection of necessary materials and supplies), the Salvation Army set up a feeding station at the mine head to feed the rescue workers and the relatives who had congregated at the mine; the Red

Cross established a canteen at the Central High School morgue, and uniformed firemen and policemen from other towns were called in or volunteered for assignment in directing traffic and aiding in the handling of the crowds at the mine and at the morgue. By the time the first bodies were brought up the next morning, nearly all the facilities needed had been prepared.

Traffic Problems

According to the police chief, the only major problem that arose in connection with the relief effort was the thousands of cars which drove into the city from out of town. An estimated 1,000 cars an hour began coming into the community on Saturday following the disaster. Many of the people who came from out of town were miners, who were volunteering their services, and relatives and friends of the miners. The majority, however, were probably curiosity seekers.

Although the heavy traffic on the highway between the mine and West Frankfort and in the community initially caused some delay in the arrival of the ambulances, this problem was rather quickly solved by having the State police block off a portion of the highway. Streets leading to the morgue were also blocked to traffic. A Boy Scout troop assisted the regular and volunteer police in directing traffic and keeping it moving through the community. Two-way radio communication was used to notify the police when ambulances were leaving the mine and this enabled them to clear the routes to the morgue.

Information Policies

A noteworthy feature of this disaster was the use of the local radio station in broadcasting messages to the general populace and appealing for various types of assistance. The director of the station obtained permission from the Federal Communications Commission to remain on the air 24 hours a day until all the miners were brought up and identified. All commercial programs were cancelled and the entire broadcast time was devoted to announcements and news concerning the rescue operations and appeals for special types of assistance wherever it was needed. As soon as bodies were identified at the morgue, the names of the victims were broadcast.

The use of the radio in this fashion appears to have been especially effective in controlling crowds and reducing the level of anxiety among the population. Most of the populace originally heard about the explosion about 9:30 or 10:00 P. M., usually by word of mouth communication. Initially, there was a great deal of anxiety on the part of the relatives of the miners. A considerable number of the wives and other relatives went to the mine shaft and waited for the men to be brought out. Similarly, when it was learned that a morgue had been established at the high school gymnasium, many persons began to congregate outside. According to the town officials, the crowds both at the mine and outside the morgue, were quiet and orderly. There was no general hysteria or other violent forms of expressive behavior, although there was some quiet weeping by a few women.

When the populace learned that they could obtain accurate information

quickly over the local radio, the crowds at the mine and the morgue diminished considerably in size. A large proportion of the anxious relatives went home and waited and listened to their radio for further information and instructions.

Despite the absence of any overall coordination of the rescue and relief activities, there appears to have been a minimum of confusion and conflict among the various official agencies. Previous experience with similar disasters in the past was apparently the major factor in their efficient mobilization and operation. The survivors of the dead miners, as well as the other persons interviewed, expressed satisfaction and praise of the work of the rescue crews and the official relief agencies. There appeared to be no general resentments against any aspect of the relief operations.

REACTIONS TO THE DISASTER

Orientation to Danger

The formal organizations of the community were well organized and prepared to cope with this type of disaster by virtue of previous experience with disasters. A tornado in 1925 killed 142 persons, injured several hundred, and did great property damage. The community had experienced a series of smaller mine disasters. In 1927, an explosion killed 27 men; in 1928, an accident killed 21; in 1947, an explosion killed 27; and a rock fall killed three men in 1948. There are a continuous series of deaths and injuries each year from smaller mine accidents.

The hospital staff, the mine rescue teams, the police, the Red Cross, the Salvation Army, the National Guard, and other formal agencies have had many opportunities to work out their operational procedures and are constantly on the alert for this type of disaster. The chairman of the local Red Cross chapter remarked: "We have grown up to know what disaster is in this community."

The rescue work was also considerably facilitated by the informal understanding among the miners themselves. It is part of the informal social code of the miners that they assist in rescue operations whenever a mine disaster occurs. As has already been indicated, within a brief time after the announcement of the explosion, several hundred miners either went to the mine or phoned to offer their services. There were many more volunteers for the rescue teams than could be used. They came not only from West Frankfort, but from the entire surrounding mining area.

In general, interviews with volunteer rescue workers indicated that intimate personal identification with the trapped miners was the strongest motivating factor among the men who volunteered. Some, of course, had relatives or close friends in the mine at the time of the explosion and were particularly concerned with their safety. Other volunteers themselves had been saved in previous mine disasters and felt that they had a special debt to repay. Many, however, had only the general identification with the miners by virtue of their sharing of common life experiences and the knowledge that they themselves might face a similar situation in the future.

The following quotations from interviews with the volunteer rescue workers illustrate the influence of their social code and their sense of identification with other miners:

> My wife's uncle was down there and I thought I should go down and help him. I was in that old No. 8 explosion and I was very thankful that somebody came down and rescued us, and I know how it feels to be down there and you can't get out. Just the idea that someone is down there alive--any old coal miner would go down and help because you never know when you're likely to be in the same spot yourself.
>
> It's just the natural thing to do. I guess that that's just human nature to want to help out somebody like that. And then my wife's uncle and I were very close. I couldn't stand the idea of him being down there and me not doing anything about it.
>
> I've worked there since 1925. And I know that if I was down there that my folks would want me out. And I felt the same way towards them. I wanted to get those boys out of there as quickly as any possible way of getting them out. And that's the reason I responded as much as I did, and done what I could.
>
> Most of the boys I knew...and when they told me and when I found out about it why naturally I wanted to get out there and see what I could do for them...There was two of the boys, especially one of them, _____, who was in at the explosion at Old Ben No. 8, in 1947. And I was one of the boys that was down and couldn't get out. They come in and found me. And he was killed in this explosion. He was at No. 8 when I was at No. 8 and he was one of the boys that help come in and found me. They come in and got me. They saved my life, by helping to get me. Naturally I wanted to do what I could because I know [mentions names of three men] were at No. 8. I felt I could do no more. They had got me. They had nerve enough to come down and try to rescue me...and I figured I owed the same to them and that's why I went out there.

By virtue of the constant presence of danger and their previous experience with disaster, the miners, their families and the general populace have developed a set of fatalistic attitudes and rationalizations in preparation for such occurrences. Mining is generally recognized as a dangerous occupation. Although this large a disaster is not expected, explosions, gas poisoning, and cave-ins are ever-present possibilities. Most miners expect these things to happen at some time, but they don't expect them to happen to themselves. It would probably be accurate to say that they have a constant fear that they will happen and they have developed a fatalistic orientation to cope with this fear.

> One miner who worked as a rescuer stated:
>
> I guess I was afraid of the carbon dioxide or the carbon monoxide because after any explosion you always get some of this poison gas.

That's the main worry any time you're down in the mine, it doesn't matter when. When you're working there's always the chance of having a rock or coal fall which is liable to get you; but this is something different; it's more dangerous and it gets more people. Of course, you know that these rock falls and that sort of accident happens all the time but I would say that a miner expects them. Even though they happen you don't expect them to happen.

Another miner referred to the miner's constant fear and the superstitions that are developed:

I think instead of saying we expect this sort of thing, I think it would be better to say that we live in almost daily fear of this sort of thing, because you don't dare forget it—you just can't forget it because there's always an accident happening. I think you could certainly say that we fear this sort of thing all the time. It's on everybody's mind. I know some people, some of the fellows what work on my crew, in fact, that just don't come to work some days. I don't know whether they're telling the truth or not, but they say that they just got a hunch that they shouldn't come that day, so they just don't show up. They think something might happen to them.

One miner expressed his fatalistic orientation as follows:

To the general public it seems worse to get killed down there in that hole. If it happens out here on the street they don't think half so much about it. But I don't figure there's any difference myself. If you're going to get killed, you get killed, that's all there is to it. Regardless of where you're at. Makes little difference to you where it happens so long as it happens, you can't do anything about it.

The miners' wives and daughters share in the fatalistic attitudes of their husbands and fathers. The following are quotes from women who had close relatives killed in the explosion:

That's your life as a coal miner's wife or daughter. You feel like these accidents are going to happen from time to time. You never know whether the next one will be yours or not. You develop a kind of—not hardness, because we love our men and our fathers—but it's more or less a feeling that that's one of the things that goes with coal mining. There's been accidents since the first coal mine and I guess there will be 'til there isn't any.

A coal miner's wife, she gets kinda used to things like that. When you hear of a mine blowin' over, why your first reaction is wondering who got killed. You get a little stoic towards it.

When it came your time, it came your time....Miners will always be like that. The survivors will go down and go down again. Mining is a dangerous field.

> I know one woman who just said that she'd leave it in God's hands. There was nothing she could do about it. She hoped her husband was alive, but if God had seen fit to take his life, she couldn't complain any more than if God had seen fit to take her life. The only thing she hoped was that if anything happened, it wouldn't be prolonged painful agony. She was quite straightforward about it. At least, she impressed me that way.

The rationalizations for staying in the mines despite the realization of danger usually take the form of comparisons with other dangerous occupations. Many of the men interviewed pointed to the greater danger of such occupations as flying and driving a truck. The following quotation from one of the rescue workers was typical:

> There's a lot of fellows get killed. Look at your farmers. They get killed. Your most disastrous thing in the world is what you're doing. Look at the people that drive a truck. You take the statistics on the hard roads. You have more accidents on the hard roads than any other thing in the world. One of the most dangerous things you got is driving a truck.

Rumors

The general expectation and knowledge of the nature of mine disasters appears to account for the restricted scope of the rumors which circulated in the community following the announcement of the explosion. Unlike other disasters investigated, in which there was a great variety and proliferation in the content of the rumors, the rumors in West Frankfort were generally restricted to reports of who and how many men were killed or alive and rescued.

Since most persons had knowledge concerning the effects of an explosion in a mine, this was the only information that was needed. As one miner said:

> They just told us there was an explosion. That was enough right there. In fact, that tells the whole story. It was just a matter of how many. You know that when there's an explosion that people are going to be killed by the concussion; they're going to be killed by flying objects; they're going to be killed by poison gas afterwards; they're going to be killed by cave-ins caused by the explosions; or they're going to be cut off and trapped and suffocated. The only question is: How many?

Some of the initial rumors concerning the number killed were underestimated; others were overestimated; in some cases there were mistaken reports concerning who was killed or rescued:

> I'd heard others weren't killed when they were. And then you'd hear, oh, everywhere from 25 people killed to 200. That's the kind of thing that went around. You just didn't know who it was or how many or what had happened to them. You heard that most of the people were killed instantly, and then you heard that a lot of them were still alive.

Because of the void in information and the continued uncertainty concerning the men who remained in the mine, these rumors appeared to have circulated for at least two days following the disaster. However, the up-to-the-minute broadcasts by the local radio station appear to have reduced considerably the extent of rumor circulation. A number of persons reported that they depended almost entirely on the radio for their source of information.

Most persons who were interviewed were reticent to talk about blame for the disaster, although several of the persons interviewed expressed fairly strong feelings that the blame would be placed on the miners rather than the company. One miner said:

> You hear that it was caused by a cigarette, by somebody smoking a cigarette. That's what you'll always hear. You always hear that sort of thing. The company always says that because, well, then you've broken the rules and it's not their fault if there's an explosion. It's kind of hard to prove something like that; it's kind of hard to prove it wasn't true too. The thing is they never say anything about the machinery down there might have thrown a spark because they have cutters and motors and a lot of things which are electrical things which can throw a spark. And it seems to me that the question should be not whether somebody's smoking or whether there was a spark from a machine, but why was there gas down there and why didn't they detect it. But I can just guarantee you that that will be the story--that somebody was smoking a cigarette.

Another miner indirectly made the same point:

> They'd like people to think that some guy touched it off smoking --but--there's a hundred chances something else had set it off.

Other miners, however, were more noncommittal in their remarks:

> Most people have sense enough not to make any wild guesses. They'll wait for the results of the investigations. Some people will make predictions now and have to eat their words later when the report comes out. It doesn't pay to make a lot of guesses.

> A thousand things could have done it. I wouldn't put the blame on any one man. I wouldn't even put the blame on <u>any</u> man. We'll never know what could have happened. It could have been an accident....a fatal accident. These things happen....they happen in coal mines.

> They got guys to study stuff like that. If they don't know what started it, it would be useless for me to try to say.

Despite these noncommital statements, the investigators formed the impression that the miners were generally withholding statements concerning blame

until John L. Lewis, president of the United Mine Workers, issued his statement. Lewis was in West Frankfort during the time of the field work for this study, but he had not yet issued a formal statement concerning the mine explosion. He later blamed the mine owners for the explosion, charging that the operating personnel knew that the explosive condition existed, but still permitted men to enter the mine. Later interviewing of the same respondents, therefore, would probably reveal less reticence to speak about the topic of blame, and a greater tendency to express feelings of resentment against the mine owners. Nevertheless, at the time of the investigation, the interviewers were impressed with the general absence of any overt bitterness or aggressiveness toward the mine company.

Reactions of the Survivors

The evidence concerning the reactions of the survivors in the mine who were in the immediate blast area is too meager to draw definite conclusions. Interview data from one survivor and published quotations from two others, however, indicate that they maintained fairly rational control over their behavior after the explosion. The standard procedure in case of such accidents is to find a fresh air passage and then build brattices to keep out the poisonous air. The one survivor who was found 57½ hours after the explosion made the following statement about the reactions of his group:

> We took off up the north air course and thought maybe we could get through it. We were at the 13th and 14th at the time. After we got in the air course we thought we could get to the first and second, about seven pairs of panels away. Us three fellows, when we got to the third and fourth, met another bunch coming back toward us. Gas was closing in from both sides. It was chasing us toward each other. We started to put up brattices and put up curtains so the gas would go around us. We built us a brattice out of burlap. We nailed it on props to turn out so the (bad) air could go around us.

Over 90 other miners on the night shift were outside the blast area. Since the mine covers an area of 12 miles, many of them were quite far from the explosion. Many did not even hear the explosion, and the first indication that they had of it was the failure of the electric power or telephone lines. Those fairly near the blast area heard a sound "like gun shot a long way off" or the rush of air through the passages.

Many of them were near the main shaft and had no difficulty in getting out. Others who were closer to the blast area found their way out through a process of trial and error. One man described the activity of his mining team as follows:

> We started out then and we got to the 9th and 10th south, down to the 5th and 6th, and we couldn't get any further, the smoke had us blocked. Well, we went back to the 9th and 10th north and started brattice-snipping there.....

> We got it fixed so that we'd have some place to go back to if we had to go back and start again. We got down to the 3rd and 4th and hit smoke there. Well, we stopped and talked there for a while about whether we should go on or go back. Finally the boss told one of us guys to take the lead and go as far as we could go, and if we couldn't make it, why turn around and go back. Well, when we got to the 1st and 2nd it got to where it had blowed bars out. We kept on going and it got so smoky you couldn't see two steps in front of you. Finally we made it to the main air course there. Well, there was six guys there and we sat down and rested awhile and got the smoke out of our lungs. Then we took the main air course and went on out through 21st west, New Main north there.

The available evidence indicates, in general, that the survivors maintained self-control and utilized their knowledge of escape routes, safety measures, etc., as effectively as possible under the circumstances. There is no evidence of hysteria or other acute emotional reactions among the survivors during the time they were in the mine.

Post-Crisis Reactions

Widows of the dead miners reported many of the usual emotional and acute physiological reactions to tension and bereavement. Those reported included sleeplessness, loss of appetite, vomiting, headaches, dreaming, fainting, and "numbness." Some of the rescue workers also reported a loss of appetite, nausea, headaches, and sleeplessness. Many of these reactions appeared to have been a direct result of the stifling heat in the mine, the inhalation of poisonous gases, and the smell of decaying bodies. Hence, it is difficult to determine the extent to which these reactions were the result of psychological shock or physical causes.

Attitudes toward the future on the part of the miners and their families appeared to have changed little as a result of the disaster. Again, this absence of change appears to be related to the general stoical attitude that has developed in the community. There was general agreement that the overwhelming number of miners would return to mining. The few expressions of persons who said they would quit were discounted. There was some talk about leaving the mines, but the general consensus indicated the belief that few persons would actually leave. The president of the United Mine Workers local expressed this belief as follows: "Sure, it will be a long time before we get over it. But they'll all go back. It's in their blood." He explained the stoical attitude of the miner by pointing out that "it's the only life he knows."

The reasons for returning to the mine, as expressed by the miners themselves, were threefold: (1) They have grown up as miners, and, consequently, have not developed other occupational skills, (2) they have a stake in the community by virtue of the property which they own. As one miner said: "I've got my life savings tied up in this house;" (3) there are few other job opportunities in the area. These are illustrated in the following quotations:

A miner who participated in the rescue works

> I call 'em dogs of the underworld. I'm one of 'em. I'll go back down. It's all I know. I've been in the mines since I was fifteen. If I could set timbers on top—but there ain't nothing like that on top.

A miner who had a close relative killed and participated in rescue work:

> After it's all over, it will go on as before. A few miners will quit. Most of these people who said they're going to quit the mining business won't do it. But some of them will do it on their own and maybe some of the wives will try to get them to get out. But most of those who say they're going to just won't do it, that's all. And some like myself, who'd like to quit but they just can't because they've got to keep their job for their children or their wife or their home; or maybe they're buying a car or something like that. No, after this is all over and things quiet down again the town will go on as usual. The widows who've got a lot of grief—they'll probably never be quite the same, but the rest of the community will just go on, just like it always has.

Another rescue worker added:

> Coal mining is all there is here. If I had anything else I could make halfway of a living out of, I wouldn't go back to them; but a fellow ain't got much choice when there ain't much else around here unless he leaves the state.

An additional reason for staying in the mines was rarely verbalized explicitly, but nevertheless was implicit in nearly all the interviews with miners—namely, the informal social code of the miners which tends to label anyone who quits out of fear a coward. The knowledge that their associates will ridicule, deride, or ostracize them for quitting without a legitimate or compelling reason appears to be a powerful factor in keeping men at work in the mines. The local police chief, who had been a miner for over 20 years before he took his present job, indicated that he had a "legitimate" excuse for leaving the mines because he had an infected lung and his doctor would not permit him to return to work underground. He implied that he was able to retain his status with his mining associates because physical incapacity is one of the few excuses which is acceptable to the miners.

SUMMARY AND CONCLUSIONS

The West Frankfort disaster provides an example of the effectiveness of a certain degree of expectancy plus organized preparation in coping with disasters. As the foregoing material illustrates, the community was well prepared both formally and informally to cope with this type of disaster. Previous disasters had provided the formal relief agencies with the opportunity to work out concrete disaster plans and operational experience in the execution of these plans.

The informal understandings among the miners and their knowledge of the appropriate action to take in the event of mine disasters was also an extremely important element in the present case. Volunteer workers needed little direction of their activity. Rescue crews were quickly assembled and placed in charge of a safety man or foreman. Once in the mine, their duties were obvious. By virtue of previous training, each miner has a rather clear conception of his role in such an event. Hence, there was very little confusion and conflict in the execution of the rescue and relief activities.

Previous experience and the constant presence of danger has also prepared the community psychologically for such events. Living with danger, they have become somewhat inured to it. There was not the complete shattering of normal social expectations which is found in most instantaneous community disasters. The widespread expression of the fatalistic orientation to disasters which was found attests to the fact that psychological defenses had been erected to cope with the possibility of disaster. The evidence suggests that these defenses resulted in greater control of emotional reactions than is normally found in a community not so psychologically prepared.

The present case, however, is not typical of community disasters generally. It did not raise the types of problems which are usually found when disaster strikes a community. It differed in at least two major respects:

1. The mine itself is spatially removed from the community. Hence, there was no immediate or direct threat to the residents. The threat to the residents was solely in terms of their identification with the men in the mine.

2. Unlike most community disasters, there was considerable time to prepare for the reception of the injured and dead. Thus, the usual problems which arise in connection with rescue and relief activities were not present. The police chief of West Frankfort compared the present disaster with the tornado which occurred in 1925 and summarized the difference in terms of the relief work:

> A disaster in mines is different from other disasters. It's a different problem altogether from a fire or a tornado. In 1925 when that large tornado came through

here, the streets were blocked. Wires were down. The electric lines were down. And you had houses on top of people. They were just crushed in right on top of people. And we didn't have ample hospital room for them. You didn't have the doctors and nurses and so forth.

When you have a disaster in a mine it doesn't come all at once. The first things you have to have is a rescue squad to go in with their masks and it gives you time to prepare for the emergency. You can figure it'll give you at least 10 to 12 hours to get things ready. Whereas as in a tornado it's already happened and bodies are laying there before you start. Your disaster is on top of you. Your bodies are there ready to take a hold of. But in a mine its different. But when you have a disaster in a mine, you could have 10,000 men and they would be useless to help us. Because you've got only one inlet and one outlet. And it takes time to get ventilation started and prepare for the time that you can start the work on them. And that gives you ample time to get your emergency squad and get everything ready. You see we started here at 10 o'clock at night. Well I was outside by 12 (midnight) and we were ready to receive the bodies. With a cyclone, or storm or fire you don't have this time.

Another thing is with your hospitalization. If you have to set up an emergency hospital after a cyclone you'd need it right now because those bodies have got to be taken somewhere and they need to be taken care of as soon as they get there. That would be different too from a mine. Even those that would be rescued wouldn't all come out at one time. They would be coming out possibly a few at a time....it would give you more time to take care of them.

The study of this type of disaster, therefore, has limited applicability in discovering the types of problems that are likely to arise in war-time community disasters. The mine explosion did not constitute a direct threat to the community or provide a crucial test of the adequacy of community facilities in the event of a direct threat. The great diversity of problems which arise when a heterogeneous community is directly affected cannot be discovered in this type of disaster.

The present disaster also did not provide sufficient material for testing how an organized group behaves when they are directly threatened. If there had been more survivors in the directly threatened area of the mine, it might have been possible to discover the effectiveness of the group organization in coping with direct threats. With only five survivors, however, there were too few persons to interview and no definitive conclusions can be drawn. Moreover, most of the five men who survived were so seriously injured that they were inaccessible for interviewing. The study of such highly organized groups as miners can be extremely valuable for testing hypotheses concerning the relationship between various types of group organization and disaster reactions. Such a study, however, requires that there be sufficient survivors to constitute an adequate sample of the group affected.

The timing of disaster investigations in relationship to the types of material that can be obtained in interviews and by observation is extremely important. In the present case, the investigators entered the community nine days following the event. This was too late to study one of the more significant problems that was present in the West Frankfort disaster--namely, the handling of tension by the residents during the period of uncertainty concerning the fate of the men in the mine. This period of tension lasted for approximately three days following the explosion. In order to study this problem effectively, it would have been necessary for the investigators to have arrived as soon as possible after the explosion, preferably within 12-24 hours. Although some problems can be studied more effectively at a later time (e.g., the nature of the formal relief work, the changes in social and personal organization, etc.), it must be recognized that the study of the processes of collective behavior which occur immediately after the event (e.g., crowd behavior, rumor, informal leadership and relief work) can best be studied by immediate investigation.

In conclusion, one especially noteworthy feature of the present disaster should be noted: namely, the twenty-four hour broadcasting by the local radio station. Interviews with the residents indicated that the accurate information furnished by the radio station was very influential in relieving their anxiety and tension and in preventing confusion. The manager of the station indicated that the station was especially careful to verify all the information before it was put over the air, and not to engage in any sensational reporting of the event. This policy of keeping the populace informed by up-to-the-minute, accurate information, is in contrast to the broadcasting frequently encountered in other disaster situations, where unverified and sensational reporting often causes considerable anxiety and confusion. The local station was also effective as a medium for organizing various aspects of the relief work and making appeals for materials or assistance. Further study of the use of local radio stations in disasters may be helpful in making practical recommendations to stations in other communities.

Appendix B-4

Report on the Elizabeth, New Jersey, Plane Crashes: A Study in Blame

REPORT ON THE ELIZABETH, NEW JERSEY, PLANE CRASHES: A STUDY IN BLAME[1]

There is a widespread belief that the phenomenon of blame for disasters is a matter of a relatively sudden and uncontrolled outburst of hostility, actuated by irrational and fortuitous processes.[2] Blame is considered a usual, if not an inevitable, feature of disasters, and the implication is that little can be done to prevent it. At best, it can be channelized in more desirable directions. However, examination of actual interviews does not bear out these general assumptions concerning the nature of the behavior. It becomes apparent, first, that much has gone before what may seem to be a precipitous outburst; and second, that the behavior is not at all irrational when the frame of reference of the persons engaging in it is appreciated. In addition, it appears that blame is not nearly so common as has been generally supposed.

DESCRIPTION OF THE CRASHES AND INTERVIEW MATERIAL

The First Crash

On Sunday, December 16, 1951, at 3:03 P.M., a non-scheduled DC-4 airliner, with 56 persons aboard, took off from the Newark, New Jersey, airport. The airport is adjacent to Elizabeth, New Jersey. The airplane immediately developed engine trouble; consequently, the pilot attempted to return to the field. In so doing, the plane passed over Elizabeth. While over the city, the plane's right wing crumpled and folded upward. The plane then turned over on its back and plunged into the shallow, narrow Elizabeth River, coming to rest against one side of a brick storehouse of the local water company which stands at the water's edge. The wreckage burned, setting fire to the storehouse; but there was no threat to any of the nearby buildings.

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[1] This report is a condensation of a forthcoming master's thesis by Mary Rue Bucher in the Department of Sociology of the University of Chicago. The study upon which the report is based is still in progress. Although the writer is acquainted with almost all of the interviews, a third of them have so far been subjected to intensive analysis. Not all statements, therefore, are equally reliable. Findings concerning the nature and conditions of the phenomenon as a process are presented with considerable confidence, but exact quantitative statements have been avoided. The rough estimates of quantity included should be taken as subject to revision on the basis of a more complete coverage of the material.

[2] See, for example, Veltfort, H.R., and Lee, G.E., "The Cocoanut Grove Fire: A Study in Scapegoating," Journal of Abnormal and Social Psychology, Vol. 38, Suppl. 138-54, (1943); and Janis, Irving L., Air War and Emotional Stress, the Rand Corporation, New York: McGraw-Hill Book Company, 1951, Ch. 7.

All the persons on board the plane were killed. A watchman on duty inside the warehouse was slightly injured by flying debris. He was the only resident of Elizabeth who was a casualty. This was somewhat remarkable in view of the fact that the plane crashed in a heavily populated area, about four blocks from the central business district. The area surrounding the crash site consists of single and duplex family dwellings and the neighborhood is composed of both lower and middle class families.

The Second Crash

At approximately 3:45 P.M., Tuesday, January 22, 1952, an American Airlines Convair was attempting to make an instrument landing at Newark Airport. It was raining and foggy. Apparently some mechanical difficulty occurred. The plane dipped low, barely missing Battin High School. There were about 125 students and teachers present in the building at the time. The plane finally plunged into a three-story frame apartment building and burst into flames. The flames immediately spread to an adjacent three-story brick apartment containing three families. A duplex house on the other side of the building into which the plane crashed also caught fire, as did a converted garage behind the building. The threat of the fire spreading to the other houses in the block continued for most of the evening. The neighborhood was predominantly a middle class one.

All the passengers on the plane, a total of 23, were killed. Six residents of the buildings which were struck were killed instantly and one other person later died of injuries. Three other residents were injured.

The Third Crash

On Monday, February 11, 1952, at 12:18 A.M., a National Airline DC-6, with 63 persons aboard, took off from Newark Airport. Immediately after the take-off, the pilot radioed back to the field that he had lost one engine and was returning to the airport. As he banked to turn back to the field, a second engine on the same side failed. As the plane dipped earthward, it hit a tree in front of a large U-shaped, 52-family apartment building, pancaked off the rear of the building, and crashed in a playground behind a children's orphanage. The main body of the fuselage landed in the middle of the playground, but the tail section from which most of the survivors were extricated, came to rest about a block away from the apartment house.

Some of the debris which scattered over the playground caught fire. The roof in the rear section of the apartment was smashed and bricks from a cornice tumbled into the court, blocking entrances to that section of the building. Flaming gasoline which had dropped on the building converted the rear of the building into a mass of flames. No other building in the area was threatened in any way.

Twenty-four of the 59 passengers and three of the four crew members were killed instantly. Four residents in the apartment house were also killed.

At least 43 other people were injured. Most of these were passengers on the plane. Several of these later died in the hospital.

The area in which the crash occurred is the highest socio-economic section in the city. The neighborhood consists of large private homes, spacious lawns, and garden apartments. The residents are wealthy business and professional persons.

Interviewers were in the field 37 hours after the first crash, 25 hours after the second, and 22 hours after the third. Interviewing continued four days, eight days, and seven days, respectively. A total of 110 interviews were gathered, most of them with residents of the immediately threatened areas.

The fact that the interviews were obtained relatively soon after each disaster means that they reflect the more immediate reactions of people. To a large extent, people were still in the process of assimilating their experience. The statements of the respondents were largely spontaneous in nature; very little probing was done. The respondents structured the issue, then, in their own way.

HOW THE CRASHES BECAME AN ISSUE TO PEOPLE

After each of the crashes, people attempted to fit the event into some pre-existing framework of explanation. They sought an understanding of what had occurred, and why it had occurred.[1] To the extent that the crashes were viewed as manifestations of certain previously understood conditions, they gave rise to no particular problem. It was only when the disasters could not be explained by such previously existent, conventional explanations, that they became an issue for people.

The Assimilation of the Disasters to the "Normal"

Plane crashes were not unheard of phenomena to the people of Elizabeth, and people had a number of pre-conceived, ready-made notions of what kinds of things account for plane crashes. When the crashes occurred, they were evaluated from the point of view of what people already knew about disasters of this type. A number of respondents explained one or more of the disasters by saying, in effect, that "things occasionally go wrong in any routine operation." Rather than calling for extraordinary action, "precautions," as one respondent put it, can be taken. For these respondents, nothing out of the ordinary was operating. The disaster was the result of certain usual, well-known forces, which can be dealt with in a routine way.

An example of this is a respondent who retrospectively described his reaction to the first two crashes:

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[1] The available evidence indicates that this process of explanation occurs after any disaster. People reconstruct their experience, trying to make sense out of what has happened to them. This appears to be a manifestation of a more general phenomenon, a necessity of fitting events into some framework, so as to know what to expect and what orientation to take toward the situation.

> Another thing, I think, is the first crash...was a so-called non-scheduled plane, and most of us in our mind can blame that—rightly or wrongly—we blamed it in our mind on the fact that the maintenance was not what it should have been and—in other words, there was some excuse for the thing. And in the second one, it was again in the daytime and although a scheduled airliner, the weather was very bad. We could sort of satisfy ourselves—if you can use that word—that by saying it was due to the weather.

This was an apparently common way of viewing the disaster in non-problematic terms; it was labeled "just an accident."

Accidents are bound to occur occasionally, and as one respondent remarked, the crash was "one of those unfortunate circumstances." For the people who labeled the crashes as an accident, there was no question of looking for causes or reasons, because their conception of accidents was such as to dismiss particular causes as irrelevant.

The question of holding someone responsible for the disaster just does not become an issue for people who interpret the disaster in this fashion, since there is nothing to hold anyone responsible for. To the extent that people view a disaster as fitting into such a conventional framework, the problem of blame does not exist.

Problematic Definitions

There seem to be two main routes by which people came to view the crashes as problematic, or as calling for further consideration. For purposes of convenience, we will call the first type, the "violation of expectations" type, and the second, the "implied consequences" type.

For the "violation of expectations" type, the disaster violates all conceptions of the usual and the acceptable. Frequently, the attempt to explain the disaster in conventional, non-problematic terms fails, indicating that something out of the ordinary is going on. The following excerpt from an interview following the third crash illustrates this:

> I couldn't believe it could be another plane crash. After all, it was a beautiful clear night, clear as day, the moon was shining, it was just as clear as daylight, and I said, well, how could it be another plane crash—so soon after the other one?

Later, this respondent picks it up again:

> Why should that motor conk out in such a short time from leaving the airport? There must have been something wrong. I mean something could go wrong mechanically, yes, but not to have two motors go out—you know there's something far wrong in that altogether.

This respondent was able to "excuse" the second crash because of the weather. Her first response when she heard of the third, was to think of the weather. The weather could not account for it. Then, other features of the situation emerged as contrary to her conceptions of the usual—the closeness

with which this crash followed the previous crash; the fact that it happened right after leaving the airport, and that two motors failed.

Another respondent indicates the failure of previous conceptions to account for the third crash:

> The conditions that seemed to exist the other night—such perfect flying weather—a four-motored plane—the other two were two-motor—most of us have considered four-motor planes safer than two-motor... perfect flying weather and nationally known airline and a four-motor plane—well there's nothing that you could sort of lean back on....

For a large number of respondents, the fact that three crashes happened so close together was sufficient to indicate that something was wrong, that a problematic situation existed. The third crash was seen as "an impossibility," "beyond all law of averages." It violated all conceptions of probability that these people held. Accidents could happen, yes, but not three in a row.

In the "implied consequences" type of case, the disaster is initially labled in such a way as to call for further consideration. It is not so much that the disaster violates expectations, but that certain features are seen as having further possible consequences, the implications of which must be explored. An example of this is the person who labels the disaster as an accident, but for whom accidents are not something readily brushed off; they are something that can and should be prevented. This type of case then begins to ask questions about why this accident occurred.

The most common case of the "implied consequences" type interprets the location of the airport as a problem. The location of the airport becomes problematical to this type of respondent because he things of airplanes as a "mechanical proposition," and "no matter how good they make a mechanical thing," as one of these respondents maintained, "there will always be defects." This type of respondent differs significantly from the kind of respondent who accepts accidents as a matter of course, because he weighs the consequences of having an airport so close to an urban area when accidents are, from his viewpoint, inevitable; the respondent who looks on the crashes simply as an accident does not think that the location of the airport is significant.

COMPARISON OF THE THREE CRASHES

As might be expected, there were differences from the first to the third crash in the number of respondents who saw the situation in non-problematic terms. Quite a number of respondents were able to brush off the first crash as "just an accident," attributable to certain features of the situation. And the indications are that a number of the respondents who viewed the first crash non-problematically, also interpreted the second crash in the same terms. In explaining the two crashes in non-problematic terms, respondents tended to pick out the same factors. The notion that non-scheduled airlines are less reliable than scheduled airlines was common, so that many respondents felt that the first crash was nothing out of the ordinary. Similarly, many persons shared the conception of weather as a factor in plane crashes, and the fact

that the second crash occurred during foul weather allowed them to ascribe it to weather conditions.

The evidence indicates that the persons who were aroused by the first and second crashes were primarily those who interpreted the location of the airport as problematical. The others were persons for whom the plane crashes were events having separate causes, and each crash was approached as a situation having a particular discrete cause. It was only when the conceptions of normal causation broke down, that the crashes became problematic. Similarly, most persons who interpreted the first crashes as "accidents," found their conception of probability stretched to the breaking point by the third crash. However, it is noteworthy that, even after the third crash, there were some persons who still did not see the crashes as particularly problematic. One respondent, for example, approached the situation from the religious-fatalistic point of view. "Whatever the good Lord has in store for you, you just resign yourself," a viewpoint which precluded any active comprehension of the situation on her part. The others still spoke of the third crash as an "accident."

THE ASSESSMENT OF RESPONSIBILITY

Respondents who defined the crashes as problematic reached a further understanding of the situation which included:

a) Causation of the event--a set of conditions, and relations between conditions which account for the event.

b) Remedial action--what should be done about the situation.

c) Agency or responsibility--those who control the operation of the causative conditions.

However, not all respondents defining the situation as problematic were able to achieve such a complete understanding of the situation. Virtually all the respondents felt threatened by the time the third crash occurred. For most of them, the feeling of threat resulted from the problematic definition of the situation. Since their conceptions of the normal and usual had been violated, they did not know what to expect. As one respondent remarked, "Well, you think that any of them might crash now." For other respondents, the feeling of threat derived from their view of the causative conditions behind the crashes, the conditions being such that more crashes could be expected. But among the respondents who felt threatened, there was a minority who did not achieve a complete definition of the situation. They fall into two classes, the first of which might be called the "overwhelmed" type, and the second, the "indecisive" type.

The overwhelmed respondents were those who never got further than feeling threatened, so far as an understanding of the situation was concerned. They described themselves as "living in fear," and thought that "they" ought to do "something" about the situation. But these respondents had no clear idea of what was dangerous or why, nor did they seem to know who "they" were, or what ought to be done about it. These few cases strongly contrast with

all the others, in that they did not begin to break down and analyze the situation. The indecisive respondents, on the other hand, were still involved in analysis at the time they were interviewed. They were in a state of uncertainty and indecision about what was behind the crashes and what should be done. The indecisive cases differ from the overwhelmed cases in that, rather than having no ideas about it, they had too many that they had not reconciled. Both types, however, were equally paralyzed from the point of view of definitive protest. They felt the need of doing something, but they were not able, themselves, to take a decisive stand. These people could not blame, because they lacked conviction about what the nature of the situation was.

Causation

There were two basic theories concerning the causes of the crashes. The most prevalent theory focused upon the location of the airport. With more or less elaboration among respondents, the basic conditions were considered to be twofold: 1) that airplanes will occasionally crash, regardless of all safety measures, and 2) that planes flew directly over Elizabeth at a low altitude. For some respondents these two notions stood by themselves. Other respondents further explored the implications of these ideas. A number of them, for example, pointed out that planes flying at low altitudes had less manueverability, so that if trouble developed while they were flying over Elizabeth, they would probably crash. Similarly, respondents observed that there was no place for planes to land in case of difficulty when they were flying over populated areas. Observations of this sort confirmed respondents in the idea that, if any mechanical difficulties arose while planes were over the city, it would be disastrous. Also, most of the respondents with this view of the causative conditions thought that take-offs and landings were the most dangerous times, and since planes flying over Elizabeth were either coming in for a landing, or just taking off, they felt the danger was greater. On the basis of ideas like this, these respondents concluded that planes were bound to crash in Elizabeth; more crashes were to be expected.

The other school of thought held to the theory that mechanical failure was the basic cause. Those people felt that planes were not being serviced properly. However, they tended to split into groups: 1) those who placed emphasis on the nature of the equipment, and 2) those who emphasized the act of servicing the equipment. The former respondents talked about equipment being overworked, or not replaced frequently enough. The latter focused upon the question of what kind of job the mechanics were doing. These respondents agreed on the point that the location of the airport was not of itself important since, if the planes were properly serviced, there would be no problem. They differed sharply on this point from persons who took the view that no amount of servicing would prevent all accidents.

Remedial Action

What people thought should be done about the situation, naturally, was dependent upon their notions of the conditions bringing on the crashes. There were, following from the above, two main schools of thought concerning what action should be taken. All of those placing emphasis on the location of the airport thought that remedial action should be concerned with preventing airplanes from flying over Elizabeth. Something should be done about the airport. Almost all of them thought the airport should be moved. A number of these people would settle for having the runways changed so that planes would not fly over Elizabeth, but most of them felt that this would be insufficient, since the runways could not be used at all times, or it would only create a problem for some other community.

For those respondents who thought that servicing was the basic problem, remedial action was along the lines of correcting "hitches" in the procedure. Some of these respondents were not too clear about what exactly was going wrong with the mechanical procedures, so they put the burden of remedial action upon a thorough investigation of the situation by the authorities, which should isolate and correct the difficulties.

Responsibility

People laid the responsibility where they thought the power over the situation resided. They passed up lesser figures perceived as having a hand in the situation in favor of those viewed as the higher authorities. A considerable number of the respondents mentioned figures who directly carried out actions leading to the crashes, such as the pilots, mechanics, those manning the control tower, etc. But in no case, were these figures held responsible. Interestingly enough, none of our respondents was able to hold the pilots responsible although respondents frequently reported that other people were blaming the pilots. A number considered the possibility that the pilots were incompetent, but in all cases, the pilots were exonerated, frequently with praise. There seemed to be a general reluctance to think ill of these lesser figures. Respondents would say "they did the best they could," or "they only did their job." Even in the cases where respondents suspected mechanics of incompetence, the responsibility was shifted upward in the hierarchy of authority. One respondent said, for example:

> That was the fault of the people who checked those planes.... I don't know whether the airport's responsible for that or if it's the airlines companies themselves that are responsible...whoever hired those men to check those planes, it's up to them to see those men check those planes.

The great majority of respondents thought in terms of the organizations which they believed were involved in the situation, rather than thinking of responsibility in the sense of those who directly performed actions. And in all cases, responsibility was ultimately laid at the organizational door. There was considerable variation in the degree to which respondents

showed recognition of the complexity and interrelation of authority involved in the operation and control of the airport. A few respondents talked in terms of vague "higher ups" who had the power to do something. Almost all of them knew that the Port of New York Authority was involved. Even though they might not have the name straight, there was recognition that there was some kind of an organization, not the airlines, to whom the airport "belonged." A number of others talked of the Civil Aeronautics Board as having a role in the situation. There were some respondents who were aware of power relationships existing between various organizations, like the PNYA and the CAB, on the one hand, and the PNYA and the state and federal governments, on the other. In these cases, rather than a focusing of responsibility, there was a diffusing of responsibility. One respondent, for example, placed responsibility on the PNYA, but also felt that the governor of the state had the power to control the PNYA, and held him and the legislature equally responsible. Another respondent did not hold the airlines or PNYA responsible, since he said that these organizations do what the CAB tells them, and the CAB is ultimately responsible to the federal government.

The important point in regard to the problem of responsibility is to recognize that people not only traced the line of responsibility upward in the hierarchy of authority, but they placed it where, in their eyes, the power to remedy the situation lay. Responsibility, then, was not a matter of what various authorities had done to cause the crashes but what they could do to prevent them. It was those perceived as having the power to carry out remedial action who were held responsible.

Process and Conditions Involved in the Assessment of Responsibility

As was said before, when the crashes occurred, people evaluated them in terms of what they knew about such situations. Insofar as the crashes were seen as explicable by pre-existent, conventional explanations, the crashes did not present an issue. However, it was only on the basis of what they knew before about similar situations, that those defining the crashes as problematical were able to make sense out of the situation. In order to organize their thinking about it, they had to see in what way their previous knowledge applied to this particular case. The way in which this was accomplished was through a classification of this situation as being of a certain general-typical kind—i.e., this particular situation was seen as analagous to certain other situations. When the respondent was able to label the situation as being basically of a certain kind, he could proceed to collect and evaluate the facts of the case.

What type of facts the respondent ultimately sought was, then, a function of the way he classified the situation, and what this meant to him. Myriads of facts were available to these respondents, but only a few were chosen as relevant. Facts were screened through the respondent's fundamental classification of the situation. Without the central reference point involved in the analogy, the facts would have been, and in the case of some respondents were, a maelstrom. With this reference point, the facts took on meaning.

Respondents who classified the situation similarly, tended to select the same facts. However, it is important to realize that, even so, the same

kind of basic analogy meant something slightly different to every respondent, and different notions of relevancy were aroused. Not only was the meaning somewhat different, but respondents had varying funds of knowledge to apply to the situation. So, although there was a common fund of facts among those with similar basic reference points, a number of respondents cited facts not mentioned by others. This variation among the facts selected is significant because it is on the basis of the particular facts, that respondents decided what action should be taken to remedy the situation. The evaluation of the facts determined the situational relevancy of the basic analogy, and consequently, what action should be taken in this particular case.

Consideration of several case profiles will serve to illustrate the above points, and make them more concrete. It should be noted that the thinking of all of these respondents revolves around the classification of this situation as having to do, basically, with a kind of machine—the airplane. It is what a machine means to them that makes the difference.

Example 1. This respondent says, "After all, it's a mechanical proposition, something is bound to go wrong now and then...the old law of averages." With this view of airplanes as inevitably having faults, he notes the closeness of the runways to Elizabeth, and observes that things happen soon after they get up. Also, he states that without altitude, airplanes can't glide in, so that when they develop trouble over the housetops, a crash is inevitable. He concludes that there will be no more crashes if the airport is reopened, and that moving the airport is the only solution, since even if the runways are shifted, planes must take off with the wind.

Example 2. This respondent states that a "machine has to be serviced properly. If you have a man that isn't doing his job properly, the machine will break down." For this respondent, the circumstances of the third crash, the fact that trouble occurred so soon after take-off, and that two motors failed, indicated something drastically wrong. On the basis of her conception of machinery, she decided that the crash could not have happened in this manner if the plane had been properly serviced. She further confirmed this idea by observing that trans-ocean planes, which to her mind are properly serviced, do not crash; that it is only at this airport that crashes are occurring, and other crashes have been because of weather. Her solution to the problem is to have the authorities see to it that capable men are selected to service the planes.

Example 3. For this respondent, the facts of the crash indicated that this was a case of "mechanical fault," which for him meant something was amiss with the procedures for keeping the airplane in good condition. This respondent knows that there are certain standards and regulations concerning the servicing of planes. Accordingly, he noticed when the plane was last serviced, the miles flown by the plane, and the number of hours before, according to CAB standards, the motors should have been replaced. In his opinion, the plane was dangerously close to limits set by the CAB for replacement of motors. He concluded that the airlines are pushing too close to CAB limits, and that planes are not being serviced frequently

enough. His solution is to make CAB regulations more rigid, put more bite into them, and give the CAB more power of enforcement.

The difference existing between the first case and the last two illustrates the split in the community which gave rise to the two different schools of thought concerning the basic causative conditions for the crashes. In the first case, the view of airplanes as machines which will inevitably have defects, leads to an examination of facts relating to the closeness of the airport. These facts would have been meaningless except in relation to his central view of machines, and his evaluation of the facts in relation to each other—the closeness of runways, the danger of take-offs, and lack of altitude—converge on the conclusion that the airport should be moved.

The last two examples illustrate the basic classification of a machine as a thing which, if treated in a certain way, will operate properly. Now this classification, in these examples, mustered up different notions of relevancy. For the second case, it brought to mind the image of a man doing the job of servicing the machine. This respondent therefore selected facts relating to whether crashes were occurring where there was proper servicing. For the third case, it aroused knowledge about the regulations according to which planes are serviced. He then selected facts which bore on the question of whether the regulations were being observed in this situation. The different evidence these divergent notions of relevancy lead to, both reinforced the basic classification of the situation, and determined the remedial action.

The process of establishing causation and remedial action has been described here as if it were linear in nature, one point following upon another. Actually, consideration of the "indecisive" cases,—those respondents who have not reached a state of certainty,—indicates that the process is more circular. The uncertain respondents are those who may still be confused as to the basic nature of the situation, and for whom the facts are not finally determined. They refer to many more facts than the certain respondents, and the facts are frequently not related to one another or to any central analogy. Similarly, these respondents may have contradictory notions of remedial action. The respondent's presentation of the facts does not have the economy and tight relationship that the decisive respondent's does. The indecisive respondent has not yet pulled together or integrated his material. The various ideas have not been assimilated, and what is relevant and irrelevant has not been finally determined.

It should be noted that most respondents did not rest with the sheer statement of the action they thought would remedy the situation. They tested its adequacy and its feasibility. Adequacy was tested by reference to the facts of the situation, and whether the solution proposed met the facts as seen by the respondent. Feasibility was in terms of whether it was possible to carry out this solution. This was particularly true of those respondents who wanted to move the airport, since most of them were aware that this solution would be countered by arguments of the practical difficulties involved. Also, many respondents considered whether their solutions were politically feasible, whether the people could command the power to coerce such a solution. In addition, solutions were justified from the point of view of the values held by respondents. For example, one respondent felt that the amount of money involved in moving the airport was unimportant compared with the lives

involved, and that "we spend money like drunken sailors anyhow."

Most respondents were aware that alternative ideas of what should be done were current in the community. They rejected opinions which differed from their own by argument from their basic classification of the situation, from the facts they selected, and from their tests of feasibility. This indicates that, once the respondent has reached a state of certainty about the situation, divergent opinions are evaluated and easily handled from the point of view of his organization of material.

BLAME

Arriving at conceptions of causation, remedial action, and responsibility, does not necessarily mean that the respondent is blaming those held responsible. Whereas most of the respondents who defined the situation as problematic achieved a further complete definition of the situation involving these conceptions, only a small minority blamed in the sense in which the term is used in this report. Two further criteria distinguish those who are blaming from those who merely have reached a definition of responsibility.

First, those who blame the agents are convinced that the agents will not of their own volition take action which will remedy the situation. Those responsible are not, in these respondents' opinion, going to do anything about it. Or if they are doing something, it is the wrong thing. This is where the significance of our respondents' arriving at a conception of what action should be taken becomes apparent. Before blame can be applied, it is necessary that people perceive those responsible as having some alternative method of action. They must feel that there is something which can be done about the situation, and that it is possible to carry out a solution. The respondent's tests of the feasibility of his solution are an argument that there is something which can be done about it.

The following quotation illustrates the respondent's conviction that nothing will be done:

> The planes fly right over the same routine...and still nothing's been done about it. Now if there were another crash, it could happen now, it could happen tomorrow...who knows. What would they come up with then? We're going to shift the airplanes, or we're going to put the—in fact I believe that they're supposed to have the planes taking a circular route now to get to the airport. In fact, that was decided upon at the first crash, but I sit here night in, night out, and the planes are right overhead, no changes...what goes through my mind is, well, who's throwing the bull now.... As I'm sitting talking to you now, I don't think they've done a damn thing right up to this minute. They haven't done a thing...and if they haven't done anything now, what are they going to do a month from now or two months from now?

This same respondent spent a great part of the interview in discussing the political feasibility of carrying out his solution. Another respondent, in answer to the question whether he thought what he wanted to happen would happen, said:

> I'm definitely assured that they will open the airport again. Sure, you can complain and beef as much as you like, but if they want to open it up, they are gonna open it up...no, of course they will be opening it, I'd take an even money bet on that.... I suppose a couple more fall, they might do something about it...the ole boys down there, they will hold an investigation and find everything is quiet, why, they will start them rolling again.

The same respondent says:

> So I think the thing can be rectified, there is no question about it, and I don't blame the people in Elizabeth for wanting it rectified.... All right, they want the airport there, because of its railroad and water and air all meet together there. Well, that's okay, but not to the tune of so many lives...with all the empty space there is, they don't have to have it over there. So what if it does cost so many billions. We spend it like drunken sailors anyhow, why not spend a few more.

These blames cases contrast strongly with other respondents who think that the agents will take action. All the available evidence indicates that practically no blame occurred after the first crash, and to judge by our cases, the reason for this may be that those respondents who had fully defined the situation felt assured that some action would be taken. After the second crash, some respondents began to question whether anything would be done, and a few cases of blame appear in our sample. Nonetheless, some respondents still thought that, surely, now something would be done. Although there were apparently still people who clung to this idea after the third crash, most of them seem to have been taking an attitude of watchful waiting, or were convinced that no action would be taken. Roughly a third of the cases in the sample taken from the last crash were blaming.

Second, respondents who blame the agents perceive them as violating moral standards, as standing in opposition to basic values. This involves not only perception of those responsible as acting reprehensibly, since failure of the agents to remedy the situation constitutes immoral action to the respondents. But blame involves setting the blamed apart from other people, by defining them as persons of particular characteristics. Blamed agents are identified as belonging to a class of persons, and a class which, to the respondent, bears certain reprehensible characteristics. Blaming respondents ascribe certain properties to the agents, on the basis of the class to which they are perceived as belonging. This ascription takes two forms, both of which may be exhibited by a single respondent. In the first, those responsible are seen as reprehensible in character. Either the policy of the organization is censurable, or the personal attributes of the class of agents are reprehensible. The agents are described as "domineering," "drunken with power." Callousness, and lack of concern for human lives were frequent themes among blaming respondents. One respondent, for example, remarked:

> The only time it will strike home to the Governor or to the member of these boards is if it happens where they live. They live in rural areas in big mansions, they don't have to worry about planes, so they don't care how many guys are killed here, or what expansion of the airport's going to do.... They don't give a damn what happens to the public.

The second form in which agents are presented for censure is by attribution of reprehensible motives to them. Motivation is implied in the descriptions given above of the characteristics of the agents, and respondents frequently go over the thin line to explicit ascription of immoral motives. These motives, which supposedly actuate the agents, seem to mean to the respondents that the agents are acting deliberately, and with premeditation. Following are some examples of motives attributed by blaming respondents:

> Some men just believe in terms of money, power, and that's what the PNYA is thinking of today.

> A thing like that really, basically goes back to a desire for people to save time, and corporations to operate at a profit, and so on, quite regardless of the—what you might regard the legitimate rights of citizens.

> They have no mercy for the people that live within the vicinity of the area or anything else. All they want to do is have progress.

> I think they should stop it themselves if it isn't safe...but it's the same ole battle cry, I guess there is a lot of dough made over at Newark airport...dough makes a lot of noise, you know.

It is this designation of agents as deserving of censure by virtue of the characteristics attributed to them which constitutes blame proper. Blame involves condemnation for something, and the something necessary for condemnation is the character of the object being blamed. All the evidence indicates that it is the respondent's conviction that those responsible will not remedy the situation, which sets off this ascription of reprehensible characteristics.

The recognition that nothing is being done by the agents leads respondents to question why it is that no action has been taken. What is behind this? Are they really trying? Do they want to do something? This is where the respondent's classification of the agents comes into play. The images which this classification draws up for the respondent determine the way that he will interpret the agent's lack of action. For example, a respondent who engaged in a great deal of motive attribution classified the PNYA officials as "business men and men with money...and the man with money has no regard for the working man." All of the respondent's previous attitudes in regard to this class of persons come into play, and are used to interpret this failure to act in the part of those responsible.

Further evidence for the importance of the idea that the agents will not take action comes from the quite large number of respondents who <u>positively exonerate</u> the agents from blame. These respondents, when considering the fact that no remedial action has been taken, bring up various considerations, all indicating that it is not really the fault of the agents. It

cannot be considered a matter of volition or deliberation on their part. There are several methods of absolving agents: First, the respondent may identify the agents with other people, rather than separate them into a class apart. This respondent says, for example, that the agents are really no different from anybody else. Anyone would do the same thing, and people are just like that. Secondly, the respondent may attribute positive motives to the agents. They are doing everything they can. Thirdly, the respondent may think that there is no action which is feasible for the agent to take. These respondents feel that, for example, moving the airport is too much to ask. They put themselves in the position of the agents and consider whether they should really be expected to carry out this action.

This evidence indicates that the process of blame ascription is circular in nature. The respondent observes that the agents have not done anything. The question of why they have not taken action emerges. To answer this question he makes certain judgments about the agents. On the basis of the attitudes aroused by his classification of the agents, he attributes certain characteristics and motives. When these judgments are negative, respondents conclude that the agents have no intention of doing anything about the situation. The notion of volition on the part of agents then leads to further negative evaluation of, and condemnation of agents.

THE SOCIAL CONTEXT OF THE BEHAVIOR

The process of assessment of responsibility and blame ascription has so far been presented from the individual point of view, with the social conditions only implied. Here we will briefly consider the more salient characteristics of the social context in which the behavior occurred.

The crashes were, veritably, the talk of the town in Elizabeth. Countless respondents indicated that the crashes were the chief topic of conversation, both among intimate associates and more casual associates. Also, the mass media devoted extensive coverage to the disasters. An Elizabeth daily paper, was promoting a campaign directed against the airport and low-flying airplanes. This campaign had been going on for some time before the crashes, and with the crashes as an issue, was considerably stepped up. People in Elizabeth, therefore, were subjected on all sides to material pertaining to the crashes.

Discussions of the crashes, both in face-to-face contacts and in the mass media, presented two kinds of material. First, all kinds of "facts," or information were presented, ranging from rumors that the pilot had suffered a heart attack to the publication of the number of miles flown by each of the motors of a plane. Second, evaluations and interpretations of facts, and various forms of rhetoric suggesting how people should think about the crashes, were current. This was the atmosphere in which people made up their minds about what was behind the crashes, what should be done about it, and whether blame was in order. The question is, what role did this play? How important was it for the attitudes which people developed?

First, let us consider the presentation of factual material. The obvious point is that people were completely dependent on their social

circumstances for the facts of the case. In the discussion of the processes involved the assessment of responsibility, it was held that people labeled the situation as of a certain type, and screened the facts through this basic definition. The important point was that facts became facts for the respondents. Although the labeling of the situation ultimately determined what became facts, there was still a period of varying lengths for people, when they were uncertain, still attempting to arrive at a definition of the situation. The evidence indicates that when they were at this point, a number of facts, divergent both to one another and to the labeling of the situation were entertained. It is then that the facts that are available to a person make the difference in the conclusions that he draws. The difference, though, is not in his fundamental conception of the situation, but in ideas about what should be done. There are respondents, for example, who share many of their ideas with other persons, but who, because they came across rumors others had not heard, came out with somewhat different notions concerning remedial action.

Respondents did, however, pick up a way of labeling the situation, both from the mass media and personal contact. This was probably especially the case with those who did not arrive quickly at their own definitions. The campaign of the Elizabeth paper seems to have had some effect in this respect. A number of respondents interviewed after the first crash gave evidence of having adopted ideas they had read in the papers before the crashes. It is impossible to decide, in most cases, how seriously they took this campaign before the crashes, but when the crash occurred, it led them to re-examine and re-evaluate what they had seen before. Similarly, respondents report first hearing from friends ideas which enabled them to label the situation. Nonetheless, it should be remembered that, once the respondents had firmly adopted a basic labeling of the situation, contradictory approaches were rejected without modifying the basic definition. It was only when they were in a state of indecision, that presentation of varying material led to its actual consideration.

It is important to realize that, whether it is a matter of facts or definitions that are handed to people, they do not simply take them over. People evaluate the material that comes to them, in terms of what images the situation arouses in them. What information they will take over is dependent on their previous experiences with similar situations. But even with the minimum of previous material to evaluate information, people still take over what strikes them as congenial. A phenomenon which illustrates this point is the extent to which people took phrases out of the mass media which seemed to express their own ill-defined feelings. For example, one woman who actually never succeeded in analyzing the situation, kept reiterating throughout the interview that they were "living in fear." This phrase was the local paper's favorite description of the current mental state. For people like this, the mass media were an aid in mobilizing and expressing what they were otherwise unable to express.

Certain kinds of information, however, seemed to be more crucial than others. The laying of responsibility with particular agents was, although based on conceptions of causality and remedial action, a function of how much knowledge the respondent had about lines of authority and organizations concerned with the operations involved. Doubtless, few respondents, before any

of this happened, had ever heard of the PNYA or the CAB. Some respondents, of course, were more sophisticated than others, especially in regard to the political problems involved in controlling the operations of the airport. But for most of the respondents, knowledge about these matters was acquired after the crashes.

Also, it should be noted that, aside from the respondent's previous attitudes about the agents, information about what policy the agents were taking in the situation was acquired primarily through the mass media. In the last analysis, for a number of respondents, the evidence of their own senses was the final arbiter of what the policy was—planes were flying overhead as usual. Nonetheless, most of these respondents indicated that they had seen published information concerning the policies being pursued by the various authorities concerned. The published statements of authorities were, in a number of cases, taken with a grain of salt. There was a general cynicism in the community about "investigations." And for the large number of respondents who considered the location of the airport the crucial issue, statements pertaining to actions being taken to assess and correct mechanical failures were irrelevant. In short, the statements of policy issued by authorities were weighed by respondents, and if found lacking in terms of their own definition of the situation, not taken seriously, and perhaps even used against the authorities.

SUMMARY AND IMPLICATIONS FOR DISASTER CONTROL

Certain generalizations may be ventured on the basis of the analysis of this series of interviews. Since the generalizations are based on observations of limited numbers of people in a single community during three successive disasters of similar character, they must be considered quite tentative.

First, it seems apparent that blaming does not follow upon every disaster. The indications are that, even after the third Elizabeth crash, the majority of citizens were not actually trying to allocate blame for it.[1] Consideration of this interview material suggests that it can be quite misleading to judge the extent to which blaming is general in the population from the picture presented by the mass media and by the various pressure groups concerned.

Second, in assessing a disaster situation, the people involved commonly ask both what happened and why, although the "why" question is more likely to be, "What caused it?" than "Who is to blame for it?"

If the causes seem to be of such character as to make a recurrence likely, people will try to determine what, if any, measures can and should be taken to reduce this likelihood and whose responsibility it is to see that these measures are actually taken. If at this stage people begin to suspect or become convinced that those responsible will not take the measures indicated, then blaming appears and spreads. Blaming, thus, does not appear as

[1] This finding is borne out by NORC studies of other disasters. In fact, blaming seems to be a rather unusual phenomenon.

a cumulative, irrational, expression of anger, hostility, and other emotions generated immediately by the disaster; it seems to be rather a result of more or less rational processes of assessing a situation, even though this assessment may be inexpert and, at many points, unrealistic.

In other words, people's behavior following a disaster tends to be oriented more toward the future than toward the past. Basic to blaming is the definition of the disaster as potentially recurrent and the perception of lack of action on the part of the responsible agents to prevent recurrence. The agents who will be held responsible and to whom blame may be attributed are likely to be those who are presumed to have power to carry out preventive actions. And these agents will be blamed not so much for their past actions as for their possible future action—or lack of it. Blame for the disaster just past is, in considerable degree, blame for the disaster which may occur in the future.

When to Pay Attention to the Problem of Blame

The finding that disasters become an issue to people when they constitute a violation of expectations means that whenever there are unusual features to a disaster people will question what is going on. This may lead to the interpretation of the disaster as recurrent. To cite an example from another kind of disaster than those considered in this report, the Boston Cocoanut Grove fire: The rapidity with which the fire spread, the inadequate exits, and the panic which occurred, apparently led people to the interpretation that proper precautions were not being enforced, and that similarly dangerous conditions existed in other public places.[1]

The indications are that the problem of blame would be much more acute under wartime conditions. In wartime, the population expects the authorities to give a certain measure of protection. It is a matter of how much people are prepared to have happen to them. If their expectations of what is likely to occur and their notions of how much can be done to protect them are realistic, blame probably will not arise. It is when the population has been led to expect protection which is not forthcoming, that trouble develops.

From the viewpoint of potential wartime disasters, therefore, authorities should recognize that the groundwork for blame is being laid long before any disasters occur. Preventive action should be taken in advance. Accurate and realistic information concerning the kinds of disasters which the population might be subjected to, and the possibilities for minimizing and preventing them, should be made general knowledge. When the population is apprised of the realities of the case, there is a possibility of preventing the emergence of blame.[2]

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[1] Veltfort and Lee, op. cit.

[2] This recommendation, however, must be weighed against the possible anxiety-producing effect of disseminating realistic information. It should be borne in mind that more is known about the disruptive effects of withholding information from the populace, than about the potential disruptive effects of giving the information.

The Detection of Blame in Its Incipient Stages

Detecting blame in its early stages is of prime importance, since all the evidence suggests that once the process is well under way, little can be done. However, current knowledge does not allow us to point to any easily ascertainable indices which are highly reliable.

Indications in the mass media, such as editorials, letters to the editor, and feature articles, can be quite misleading as to the generality or seriousness of the problem. Nonetheless, if the mass media present a disaster as an issue for blame, the public is placed in the position of weighing the matter. The authorities should probably act immediately whenever the question of blame is raised. Failure to do so might be a factor creating the issue for the general public. When certain organised groups in a community take up the problem, the situation has probably already reached dangerous proportions, since it may be assumed that such organizations are sensitive to what might become meaningful issues to constituents.

Probably the safest course for authorities to pursue is to take action to minimize blame whenever a disaster with any of the features indicated in the above section occurs. It may be too late to control it if nothing is done until its presence is definitely ascertained.

Control Measures

The fundamental point in controlling the emergence of blame is to communicate to the public that the authorities are cognizant of the problem, and are doing everything in their power to relieve it. It should be remembered that it is the public's interpretation of failure on the part of authorities to take real action, which leads to blaming. Everything must be done to present a picture of the authorities involved as genuinely concerned and sincerely attempting to remedy the situation.

Appendix B-5

A Preliminary Report on the Bakersfield,

California Earthquake

August 22, 1952

A PRELIMINARY REPORT ON THE BAKERSFIELD, CALIFORNIA EARTHQUAKE

August 22, 1952

Introduction

The following is an initial report on the field trip to Bakersfield, California, undertaken by the Disaster Research Team of the National Opinion Research Center. The purpose of the field trip was to study the social and psychological effects of the earthquake which occurred in Bakersfield on August 22, 1952.

This report is limited to a short description of the event, a brief discussion of the problems chosen for study on the trip, the activities of the field team, the number and type of interviews obtained, and some tentative findings based on the experience and impressions of the field investigators.

Description of the Event

Bakersfield, California is the county seat of prosperous Kern County, at the southern end of the San Joaquin Valley. The city, located 113 miles north of Los Angeles, is the focal point of a diversified industrial, agricultural, and trade area. The metropolitan area includes nearly 122,000 people, and its trade area embraces about a quarter of a million people.

The August 22nd earthquake was the second major quake in 1952 to hit southern California. The first occurred on July 21, and occasioned severe damage in the rural town of Tehachapi, 45 miles away. However, other than slightly damaging a few public buildings (particularly, the general hospital and several school buildings), the first quake had little direct effect on Bakersfield. The second quake, with a magnitude of a little over 6, and its epicenter very near Bakersfield, occurred at 3:41 P.M., August 22nd. The central business district was hardest hit. At the time of the quake this area was crowded with its daily complement of workers and shoppers. Although damage extended over 98 city blocks, and ran into the millions, only 2 persons were killed, and 32 injured. Almost all of the damage was done to public buildings and private businesses. Damage to private homes, for the most part, was negligible. Because the residential areas remained intact, there were no problems of a mass nature, such as feeding and housing homeless people.

Problems of the Study and Activities of the Field Team

Three members of the Disaster Research Team arrived in Bakersfield on Monday morning, August 25. With several different problems in mind upon which to focus study, they spent the first two days engaging in preliminary observation and exploratory interviewing. On the basis of this initial analysis of the situation, the following problems were chosen as being most significant and fruitful for study in this disaster:

1. The Effects of Disaster on Work Groups. Since the central business district was the hardest hit and because the quake occurred at a time when the district was crowded with people at their jobs, the quake offered a unique opportunity to study the social and psychological reactions of people who are in a work situation. Presumably, war time disasters will frequently affect people while they are at work, and will involve the kind of work groups which are found in and near the central business districts of a city. Prior to the Bakersfield quake, most of our studies had been concerned with disasters involving a social matrix composed of family groups. We can assume that different problems will arise in connection with the reactions of people who are exposed to disaster in a work situation. It was decided, therefore, to choose for intensive study a representative sample of the types of institutions of work found in and near a central business district.*

Five institutions were selected for study: The selection aimed at a range of variation with reference to the following criteria: geographic location, damage to structure, nature of enterprise, size of establishment, type of management (i.e., local, chain or public ownership), socio-economic status of employees and number of fatalities and casualties. In each of these institutions the attempt was made to interview people at various levels of the employee-employer hierarchy.

Salient facts about the five institutions selected for study are given below. With the exception of the hospital, they are listed in order by the amount of destruction sustained by the structure in which the institution is located.

a. A retail women's apparel shop connected with a national chain and employing about 15 persons. It was located in the central business district, and was almost totally destroyed. One of the two fatalities in the community occurred here. Seven of the employees present at the time of the earthquake were interviewed.

b. A locally owned retail department store employing approximately 275 people. Fronting a city block in the middle of the business district, it suffered about 60-70% damage. One department in the store was chosen for intensive study. Five of the personnel in this department were interviewed. Informal interviews also were conducted with various officials in the store's hierarchy.

c. A laundry and linen supply company located on the periphery of the central business district. Part of a statewide chain, it employs 29 people. It suffered about 25% damage, and three casualties occurred among its employees. Seven of the employees present at the time of the quake were interviewed.

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* A study of the reactions of the thousands of shoppers in the central business district that day was also considered. However, it was discovered upon an analysis of the situation that the personnel and resources required for such a study was considerably beyond that available to the field investigators. Such a study therefore had to be set aside in this particular field investigation.

d. A savings and loan office situated in the central business district and employing 28 people. The building suffered about 10% damage. Fourteen of the office workers present the day of the quake were interviewed.

e. The county hospital with a capacity of 760 beds, situated at the edge of town. All but one wing of the hospital had to be evacuated. Eleven persons, most of them holding key positions in the hospital's hierarchy, were interviewed.

2. Expectations and Anxieties in Relation to Behavior in Disasters. The people most highly involved in the August earthquakes were those in the central business district. In addition, these were the persons who, by constant attendance at places of work in the business area, felt most highly threatened by the possibility of future quakes. Therefore, the persons interviewed in the work situation also provided a sample of the population most subject to anxiety.

3. Institutional Adaptations to Disasters. Another important problem area for study concerned the adaptations which various institutions make to the possibility of recurrent disasters. Here we ask: Under what circumstances do various institutions prepare for disasters? What plans are made? How effective are these plans?

A number of formal and informal interviews with officials in various public and private institutions were conducted in order to ascertain the extent to which various institutions in the community had prepared and were preparing for the eventuality of future disasters.

During the course of eight days of field work, the members of the Disaster Research Team gathered a total of 45 intensive formal interviews, of which 30 were tape-recorded and 15 verbatim written accounts. In addition, approximately a dozen informal interviews were conducted with various key officials and special respondents. The interviews were further supplemented by personal observations and analyses of newspaper accounts, operational disaster plans, and other documents.

Preliminary Findings

The following findings emerged from a preliminary review of the data by members of the field team. These findings should be viewed as tentative and subject to revision and modification on the basis of more detailed and systematic analysis of the interview protocols.

A. Work Situation

1. In work groups which were characterized by a high degree of social solidarity, the members of the work group tended to be highly sensitive to the actions of each other during the crisis period, and built up their lines of activity in reference to one another. In work groups where the members were more loosely tied together, the members appeared to be less aware of the actions of others, and built up their actions without reference to what others were doing. The actions of

the members of more socially cohesive groups, therefore, were group-oriented, whereas the actions of members of loosely organized groups were usually individually-oriented.

For example, some panic flight occurred in one of the latter groups, whereas in one socially cohesive work group the members were solicitous of the welfare of one another. In the more loosely organized group, activity was not controlled by the behavior of others as it was among the members of the more socially cohesive work group. In fact, in the former as over against the latter group, some of the individuals were not even consciously aware of the action of others who were present and in close physical proximity with them.

2. Persons in the work situation who held managerial or supervisory positions tended to be highly aware of their responsibilities during the crisis period, and acted in terms of them. For example, almost all such persons incurred the danger of re-entering damaged buildings immediately after the quake in order to safeguard business property. Even non-supervisory personnel who held some position of responsibility generally tended to act in the same way. For example, the tellers responsible for the cash at their windows returned inside the savings and loan office after the quake to place the money in a safe place.

3. In a number of cases, some employees did not have complete faith in the assurance of management that it was safe to go back to work in partially damaged buildings. In a few cases, when exceptional danger had been experienced in the place of work, they voiced unwillingness to return to work. Most employees felt that there was more danger at their places of employment than at home. However, despite this apprehension, almost all employees returned to work. This was true even of those who had voiced the greatest unwillingness to resume work. The following factors seem to be involved in this return to work:

a. First, it seemed evident that fear of losing their jobs was not a factor. Management did not hold this up as a threat and most employees felt that, if they really did not want to return, they did not have to at that time.

b. The fact that management itself was undergoing the threat of returning to work in partially damaged buildings appeared to be significant. Many employees expressed the feeling that it must be reasonably safe if management personnel themselves returned to work.

c. There was considerable informal group pressure to return to work. Because other employees were returning to work, individuals felt that they also should get back on the job.

d. There was a feeling on the part of many workers that since they had gone through one harrowing experience without any physical injury, they could survive another. This feeling,

however, was not shared by those who had undergone exceptional exposure to danger. The evidence suggests that the people who felt they had narrow escapes from death or injury constituted a considerable proportion of those persons who voiced unwillingness to go back to work.

e. Many managerial and supervisory personnel reported that they reported back for work because of loyalty to the company. How important a factor this actually was, however, can be determined only by a detailed analysis of the data.

4. Because they had gone through the experience of the earthquake together, there was a heightening of group solidarity in some of the work groups. This seems to have been in part a function of the previous degree of group solidarity. Those groups which had a high degree of solidarity previous to the quake were the ones which showed the greatest increase in solidarity.

5. As soon as possible following the quake almost all workers left the central business district. Normal work was completely disrupted for that day. There were at least two reasons for this exodus. First, as long as they remained in the area, they were subjected to the continual threat of collapsing structures and aftershocks. Second, there was a general desire to contact relatives.

The fact that people from the central business district were leaving the area as rapidly as possible, and people in outlying districts were converging on the business district to see what had happened, resulted in a tremendous traffic jam which impeded the policing of the area. Potentially this may have become a very serious problem if, for example, there had been many casualties and ambulances had to get through. The fire chief reported difficulties in maneuvering his trucks into positions where they would be able to cope with outbreaks of fire, which fortunately did not occur. As it developed, the situation did not necessitate the maintenance of clear channels for traffic of emergency vehicles but this, as one official put it, was "a case of pure luck."

6. Most establishments reported a loss in work efficiency and productivity in the first few days following the resumption of work activities. This appears to be due to at least two factors: (a) The general apprehensiveness of workers, manifested in nervousness, difficulties in concentration, and increased talkativeness; and (b) A breakdown of the previous organization of work both within and between business establishments; and until new patterns were worked out, there was an inevitable degree of confusion.

B. Expectations and Anxieties

1. Nearly all of the persons interviewed had almost immediately defined the situation correctly as an earthquake. This appears to have been due to previous experience with the July quake and its aftershocks.

2. Some of the respondents had a predefined course of action which they followed during the crisis period. They had rehearsed in their minds what they should do (e.g., dive under a desk, run to the back of the building, etc.) and when the quake hit, they attempted to follow their plans. Such premeditations appear to have been occasioned, in part, by the recent experiences with earthquakes. In addition, following the first quake, some of the business firms' employees had been advised of the safest measures to take in the event of another earthquake.

The evidence indicates, however, that most people did not have a premeditated course of action. Furthermore, at the completion of the field work it was the impression of the field team that most residents still had not worked out any individual plan of action to be followed in the event of another quake.

3. Although more earthquakes were expected, the experience of coming through the quake physically unscathed had the effect of diminishing the level of anxiety in some cases. In other cases, the level of anxiety was increased. What factors were involved in this increased anxiety among some groups of the general population, can be established only upon further analysis of the data.

C. Institutional Adaptations

Except for the two instances discussed below, the field investigators found or heard of no formal institutions or establishments which had made concrete plans in anticipation of earthquakes. There appeared to have been no preparations prior to the August 22nd quake, and, at the time of the field study, no evidence of preparations to deal with possible future quakes. The two major exceptions were the fire department and the county hospital.

1. The Fire Department. After the August quake, the city fire department devised and was putting into operation a master plan to cope with future disasters. The department had learned from the recent quake how easily its communications could be disrupted. Consequently, its plan emphasized maintenance of contact among all units during a crisis. For example, mobile radio transmitters were strategically placed throughout the city, substitute sources of power (i.e., generators) were placed in safe locations, and an elaborate, detailed procedure was worked out so that in any eventuality, all fire stations and most units would have some sort of contact with a central fire headquarters.

Fearful that another quake might set off many scattered fires, the department in its master plan provided for a distribution of equipment and resources designed for the broadest possible coverage of the area for which it was responsible.

2. The County Hospital. During the years 1950-1951 the hospital had developed a detailed civilian defense emergency plan. This dealt with problems of handling the large influx of emergency cases that might be expected in wartime disasters, under possible conditions of lack of power, gas, communications, etc. It did not, however, take up the difficulties

that might arise if the hospital itself were damaged, and did not consider evacuation as a possible exigency. Therefore the plan had somewhat limited applicability to the specific problems arising in this particular emergency.

In this case, since only a few casualties of the quake were admitted to the hospital, there was no problem of an unusually large patient load. The problems that did arise revolved around the task of removing patients from quake-damaged portions of the hospital and of reinstituting relatively routine hospital procedures in structures built and equipped for non-medical purposes.

However, the existence of a plan helped in two respects:

a. The very process of thinking through problems of putting the hospital on an emergency basis had the effect of sensitizing personnel in advance to what they would be faced with, enabling them to consider some problems before they actually arose.

b. Since the plan laid out the distribution of beds and facilities for emergency wards, the hospital was able to deal with earthquake damage to many of its wards by moving them to the undamaged wing and to other buildings on the grounds, according to the emergency plan. The major difficulty in this was sheer lack of space. This was handled by discharging as many patients as possible, and sending others home on leave. A number of patients were sent to other hospitals with which there were previous working arrangements. The rest were moved either to other buildings on the hospital grounds or into the undamaged wing.

Setting up wards in other buildings which were not equipped for such purposes, entailed difficulties which were not critical, but were largely of a nuisance order. A number of nurses interviewed were disturbed by such things as not having enough wash basins, lack of medicine chests, lack of buzzers, etc. Along with spatial separation from major hospital facilities, such as X-ray machines, and the food plant, these were regarded not as insurmountable problems, but largely in the nature of an added burden in carrying out routine activities.

The fact that the hospital, because of the great space problem, did not admit elective cases of any kind, created a great backlog of cases which eventually would have to be hospitalized. This constituted one of the major problems facing the administration at the time the field study was conducted. This was clearly one of the prime reasons why the hospital administration felt it necessary to get back into its normal operating routine as quickly as possible.

Appendix B-6

Report on a Plant Explosion,

St. Paul, Minnesota, February 8, 1951

REPORT ON A PLANT EXPLOSION,

ST. PAUL, MINNESOTA, FEBRUARY 8, 1951

INTRODUCTORY STATEMENT

At approximately 8:20 A.M. on February 8, 1951, an explosion occurred in the St. Paul, Minnesota plant of the Minnesota Mining and Manufacturing Company. The blast occurred without prior warning. It killed 14 persons, injured over 50 others, and caused physical damage estimated at over one million dollars. According to the county coroner, "the effect of the blast could be compared to that which might occur in a bombing." Engineers later estimated that the explosion was equivalent to the power of two 1000 pound bombs.

This explosion is of interest to persons concerned with disaster preparedness because it illustrates the effects of an instantaneous type of disaster. A disaster of this type occurs immediately, without warning, and contains the elements of surprise and shock. Because the populace is unable to erect physical, psychological, and social defenses, it tends to maximize and accentuate the deaths, injuries, physical damage, and the elements of confusion, and personal and social disorganization. While the case cited here was focalized and restricted in scope, it illustrates certain problems that are likely to be met in a more widespread disaster of the same type. Hence, a report of the effects of this disaster on individuals and community organization may be of value in devising methods for coping with the problems which it raises.

The findings incorporated in this report are based upon intensive interviews with ten persons closely involved in the explosion, supplemented by extensive newspaper accounts. The findings and recommendations presented should be viewed as tentative and subject to further testing in similar types of situations.

RECONSTRUCTION OF THE SITUATION

The Minnesota Mining and Manufacturing Company plant, engaged in the manufacture of tapes and abrasives, is situated in a highly industrialized area of St. Paul. It consists of a cluster of 4 reinforced concrete buildings connected by a network of underground tunnels. An estimated 800 to 1,000 workers were in the plant at the time of the explosion.

The explosion originated in the six-story minerals building of the plant. Operations in this building consist of handling various granules or grits used on abrasives backed by cloth or paper. The reported cause of the explosion was a leak in a groundfloor butane gas furnace, used in treating minerals for the manufacture of abrasives.

PHYSICAL EFFECTS OF THE EXPLOSION

The explosion ripped through the minerals building, dropped the cement groundfloor into the basement of the building, uprooted machinery and hurled chunks of concrete and other debris through the structure and into tunnel-connected buildings nearby. It blew out hundreds of windows in the building; caved in walls, blew out doors, and overturned and smashed a boxcar on a railroad siding outside the building. Following the path of least resistance, the blast shot through the connecting tunnels and elevator shafts; it bulged out the sides of the elevator shaft in the administration building a block (500 feet) away and caused the elevator to drop to the bottom. The explosion also broke electrical lines, steam and water pipes, and the telephone system in the plant. It blew out much of the glass wall of a neighboring factory building, and broke numerous windows in stores and factories within a radius of eight blocks. Residents up to a mile and one-half away said they felt the blast and the sound was reported as far as 4 to 5 miles from the plant.

Of the eleven persons who died within a day of the explosion, seven of the victims were killed where they stood; two died enroute to the hospital; two died at the hospital. Three of the more than 50 injured persons died within a period of 10 days following the explosion. All were reported to have died from internal injuries caused by concussion. Some of the victims were dismembered; at least one was decapitated; some were burned. A peculiar feature of the dead and injured was their steel gray color--a result of the abrasive dust which was blown into their clothing and skin by the explosion. Presumably most of those killed were on or near the ground or basement levels, because some employees escaped without injury from upper stories of the structure.

PSYCHOLOGICAL AND SOCIAL EFFECTS OF THE EXPLOSION

1. Since there was no prior warning that an explosion was imminent, the population in the plant and in the surrounding area was caught completely by surprise. Some workers reported that they did not even hear a sound. The impact of the explosion apparently rendered them unconscious immediately. Others reported hearing a "dull thud" or "a terrific roar" followed by the fall of concrete, the crashing of walls, etc. The immediate reactions of the conscious survivors was a sense of confusion, bewilderment, and inability to act. There was confusion regarding the source of the explosion and therefore a confused sense regarding the course of action to be taken.

2. Most persons tended to interpret the explosion in terms of their own immediate surroundings. Each of the persons interviewed reported a different interpretation. Several workers interpreted it as the dropping of various types of equipment or machinery in upper floors of the building (presses, oil drums, etc.); one believed it to be the drop of an elevator; a woman living in a house a block away interpreted it as the explosion of her oil stove, etc. Another woman in a nearby house reported that she thought it was the atom bomb. In most cases there was no realization of the magnitude of the disaster until after the various escape actions had been taken.

3. This initial, momentary period of confusion appears to have been followed by a sudden sharp awareness of the threat to personal survival, particularly on the part of the workers in the disaster-struck building. The sight and sound of falling debris, the dust-laden air which gave the appearance of clouds of smoke and the sudden darkness produced by the destruction of electrical lines tended to evoke acute fear reactions.

4. These fear reactions were heightened and reinforced by the moans and screams of the injured and the perception of others attempting to flee from the building. Panic and flight were characteristic reactions following the awareness of personal danger. The following personal accounts illustrate the common preoccupation with escape from the threatening situation:

a. Machine operator on 2nd floor of minerals building (this man had discovered the gas leak and allegedly was on his way to report it):

> I was on the second floor at the time of the explosion. When I came to I was in the basement of the building. The dust and minerals and everything was crashing all around. My first thought after I got straightened in my mind was that something would fall on me and finish me. I fought that down and then my main thought was to figure a way to get out as soon as I found I was able to move without any trouble. I can truthfully say when I heard the moaning and crying of the others I did get quite panicky. I headed in the direction of a window; in my mind's eye I was still on the second floor. I saw a red light and I headed toward that, when I saw it was fire, so I headed back the other way. I became weak so I sat on a piece of cement block and while I was sitting there I felt a draft and it seemed to revive me and so I went toward the draft and discovered a window where the wall had blown out. I crawled out--it happened to be ground level--and several men saw me coming out and they helped me into the nearest police car that came up and they took me to the hospital.

b. Shipping clerk on first floor:

> All I remember was a terrific explosion and bricks falling all around me. I guess I was knocked out. People were screaming all around me. Next to me on the floor was _____ (another employee). We got up together and ran out of the building.

c. Coding clerk on second floor:

> I don't remember hearing any explosion. I must have been knocked unconscious. When I came to I was 30 feet away from the place I'd been. There was a gush of flame and smoke coming up the elevator shaft when I came to.

I just started running. Lots of other people were running too. That's how I knew where to go.

d. Laboratory technician on sixth floor:

I groped my way out into the main room and found chaos. All the lights were out and a wall was blown in. There were men on the floor covered with debris. I pulled chunks of cement off their heads and went down to the fifth floor in the dark. There were more bodies there, but I couldn't do anything for them, so I kept going down to the fourth floor. I hollered to firemen. They raised a ladder and got me out. (He was later treated at the hospital for shock.)

e. A company guard standing in the doorway of an adjacent building:

I heard a dull thud, followed by a terrific roar. The doorway where I was standing blew out, but it didn't hit me. I watched as people ran out, some of them screaming and injured. Then I ran to call for help.

f. A maintenance man on the sixth floor:

Six or eight of us became panicky when we found the stairways blocked by chunks of concrete. The dust, which looked like smoke, made us think that the building was in flames below us. After being panicky for a while, we calmed down and put our heads together. We decided we could make it to the fifth floor by crawling over the debris.

5. The immediate concern for personal safety and the period of panic and flight among the survivors was followed by a return of some degree of self-control and a heightened awareness of other persons. The immediate concern for self gave way to a concern for other persons. This took several forms:

a. Among the uninjured or slightly injured, the reaction of panic and flight subsided when they perceived that the immediate danger to themselves had lessened. Some of the survivors turned to assist the injured even before they themselves had escaped from the building. In most cases, however, this was done only after they had assured their own safety.

b. Persons in the lightly damaged buildings in the plant were among the first to recover from the initial confusion and the first to undertake informal rescue and relief work. The lesser threat to personal safety appears to have enabled them to recover more quickly from the impact and organize their behavior. The greater threat in the

minerals building caused more severe fright and panic reactions which had to be overcome before behavior was brought under control.

c. Among the injured who were trapped by debris or unable to move because of their injuries, the immediate reactions took the form of violent screaming and concern over their rescue. After a period of time, this gave way to concern over their families and relatives. Persons who assisted in their rescue reported that they seemed to have but one thing on their minds. "They kept saying: 'Oh! my poor wife and kids .... Oh! my poor wife and kids!' They spoke as if they had little hope."

6. Some of the survivors underwent a double emotional shock--the first from the physical impact of the explosion and the second when they saw the mangled and dismembered bodies of the dead and injured. The perception of burned and maimed bodies likewise affected those on the periphery of the explosion who had not experienced the physical impact of the explosion except in light form, but who assisted in the rescue work. Several of these persons who were interviewed more than a week after the explosion showed evidence of severe emotional disturbance which they attributed to the sight of badly mangled bodies.

7. The evidence indicates that severe emotional after-effects and persistent emotional disturbances did not necessarily coincide with the extent of actual danger or physical involvement in the disaster. Some persons only minimally involved in the actual situation gave evidence of hysteria and other severe affective disturbances, while others who had been near the center of the explosion and suffered injuries showed no severe or persistent emotional after-effects. The persons who were immediately knocked unconscious by the blast, particularly, showed fewer emotional after-effects than those who had remained conscious.

8. Survivors frequently reported various psychosomatic reactions lasting for periods of several hours to more than a week following the explosion. (The last interviews on which this report is based were obtained ten days following the explosion. It may be assumed that these reactions persisted beyond this time among some of the survivors.) Some of the reactions reported were shock, nausea, vomiting, hysterical crying, fainting or "faint feeling," loss of appetite, headaches, nervousness, sleeplessness, increase in dreams and nightmares, inability to concentrate, and feelings of weakness or exhaustion. Again, these reactions did not necessarily coincide with those most closely involved physically in the explosion. They were frequently manifested by persons only minimally involved physically--e.g., by persons who aided in the rescue work, a housewife living a block from the explosion, and by relatives and friends bereaved by the death or injury of one or more of the workers. Strong identification with persons who died or were injured in the explosion tended to increase the emotional upsets and psychosomatic reactions of persons only minimally involved physically.

9. The attitude of the survivors toward the dead and seriously

injured was often characterised by a feeling of ambivalence, typically expressed in the following manner: "I was grateful that I was spared and at the same time I was sorry for those other fellows."

10. The initial relief efforts, as indicated above, were undertaken by uninjured or only slightly injured persons in the immediate area. These efforts were sporadic and unorganized--consisting of acts of individuals or small groups of workers. These efforts consisted of lifting debris from the injured, carrying or assisting them from the building, covering workers who could not be moved, staying with the injured and attempting to aid and comfort them until help could be obtained, and similar acts. Before police ambulances had arrived, 3 laundry trucks, delivering laundry to the plant, were pressed into service as emergency ambulances.

11. The formal relief work was directed by the Red Cross, who sounded the disaster alarm which sent police and firemen, ambulances, sheriff's squads, doctors, etc. to the scene. The organized relief work included the following: Twelve fire rigs and 12 St. Paul police squads, including 4 equipped with first aid kits and stretchers; 2 police and 4 private ambulances from St. Paul, one from White Bear Lake and one from North St. Paul; 30 St. Paul detectives, who directed the crowds; 4 squads of county sheriff's deputies and 12 state highway patrolmen. Three Minneapolis fire rigs were sent to St. Paul to substitute for the 12 St. Paul rigs at the blast scene; a Minneapolis smoke extractor was sent to the wrecked plant.

Police blocked streets to traffic and pedestrians for 3 blocks around the plant. Three Roman Catholic priests were escorted into the plant, where they gave the last rites of the church to the dead and seriously injured. A Red Cross canteen unit was set up on the scene, serving coffee to rescue crews. Stenographers and clerks in a bank 2 blocks away from the plant set up a coffee bar for rescue workers in the basement of the bank. The Red Cross alerted all available nurses in the surrounding counties to hold themselves ready to replace St. Paul nurses on the late afternoon and night shifts. After a broadcast call for blood donors, the St. Paul Red Cross blood bank was swamped with volunteers and was able to send out 47 pints of whole blood within an hour and a half of the blast, along with 18 plasma units. Over 150 persons (including 60 relatives of the dead and injured) donated blood; 400 were turned away and were asked to return the following day or later. The mining company officials notified the relatives of the dead and injured as soon as they were identified. They later helped to arrange the funerals and took steps to provide financial aid for the relatives.

12. In general, the respondents interviewed felt that the relief work was well handled, and there appeared to be no general resentments against the company or relief workers. However, anxiety over a future larger disaster was a common reaction. The sight of so great an effort being put into a disaster of a focalized nature appears to have increased the anxiety over the occurrence of a more widespread disaster. A number of persons specifically expressed fear or dread over the consequences of an atomic bombing.

13. The sound of scores of sirens sounded by ambulances, fire trucks and police cars going into the area frightened many persons and increased the level of anxiety. A number of persons reported that the sound of so many sirens was the most frightening thing about the whole disaster.

14. Immediately following the explosion scores of anxious relatives and friends of persons employed by the company milled in the area. In order to disperse this crowd and hasten the evacuation of employees from the building, the plant officials deliberately started the rumor that a second explosion was imminent. This rumor was apparently effective in forcing the crowd back and police squads were able to keep them out of the area thereafter. Officials complained of the absence of a portable loud speaker system to issue instructions to the crowd and relief workers.

15. Rumors were the immediate and primary source of information for those in the stricken area and among the crowd. These rumors were concerned with the number dead and injured, the nature of the injuries, and the cause of the explosion. Except for the exaggeration of the number of dead and injured, the rumors were apparently based upon essentially correct information. A later rumor reported was that the gas leak causing the explosion was known two or three days before the explosion.

The telephone also provided one of the early sources of information to the residents of the community. The telephone exchanges in St. Paul were reported to have carried their greatest peak load in history following the explosion. The most seriously affected exchanges were those in the immediate vicinity of the plant. Despite radio appeals asking patrons to limit calls through all St. Paul exchanges, persons continued trying to call the mining plant to see if relatives were safe.

The radio, television, and newspapers provided information to most residents of the larger community. Frequent news flashes were broadcast within a short time after the explosion, and these appear to have reduced the extent of rumor circulation.

SOME GENERAL IMPLICATIONS

1. The absence of a warning system located near the source of the explosion probably caused a greater number of deaths and injuries than would have taken place if even a few moments warning had been given, since the workers were not able to take even elementary protective measures or attempts at escape prior to the explosion. At least two workers had detected the gas leak prior to the explosion and were on their way to report it when the explosion occurred. If there had been a warning system nearby, it is likely that the number of deaths and injuries might have been considerably reduced, if not eliminated. The possibility of installing a readily accessible warning system throughout each industrial plant (and particularly near the source of potential explosions, fires, etc.) should be investigated.

2. This disaster re-emphasizes the need for a specific pre-rehearsed

plan of action to be taken in the event of disaster. All the evidence collected to date indicates that automatic bodily habits are important in preventing confusion and in mitigating the adverse physical, psychological, and social effects of disasters. Each industrial establishment, business, home, etc., needs to have a plan which takes into account the specific hazards, routes of escape and lays down the modes of action to be taken in various contingencies. In order to be incorporated into automatic, habitual responses, such a plan requires repeated rehearsal and drill. Without such a plan, behavior in disaster situations tends to be uncontrolled, and non-adaptive. This disaster situation strongly emphasizes again the fact that general admonitions prove ineffective in situations where individuals are exposed to immediate bodily danger or the threat of such danger.

3. Despite the focalized character of this explosion, a major proportion of the organized disaster services of the entire community and part of other communities was utilized. The anxieties and fears expressed by residents regarding the possibility of more widespread future disasters therefore appear to be essentially justified in fact; there seems to be an actual unpreparedness or inadequacy of the organized disaster services to cope with a disaster of major proportions. A similar state of unpreparedness is reported to exist in other communities. In view of this fact, it would appear expedient to develop in each community an organization of trained volunteer units of civilians able and willing to go to work in the event of serious disasters. Focalized disasters of the present type would provide valuable training for such units in preparing for more serious events. The interviews obtained in the present case suggest that the citizenry would readily cooperate in such an organization. In fact, one of the most common suggestions made by those who were interviewed was that such an organization was needed and should be formed.

It is also quite likely that some of the adverse psychological effects of disaster situations would be reduced or eliminated by mobilizing the civilian population in this fashion--since the feeling of helplessness or inadequacy in participating in relief work is often cited as a source of emotional upset and other disturbances. The feeling of "doing something useful," as it is often expressed, appears to be a powerful factor in reducing the elements of fear and anxiety and provides a constructive outlet for tensions resulting from the disaster situation.

4. One of the major sources of fright in the present case was the sound of sirens on ambulances, fire trucks, and police cars. If it be assumed that the function of warning signals is that of preparing citizens to take appropriate action, it would appear that this function was often controverted in the present example. A number of persons reported that the fright and anxiety caused by them rendered them unable to act in a rational manner. In view of the possible deleterious effect of such stimuli as sirens (also reported in interviews in other local crisis situations), the possibility of substituting other forms of warning signals or the elimination of the use of sirens in certain situations needs investigation. In situations of the present type, it is possible that the net effect of the use of sirens may be psychologically more harmful than useful.

5. The equipping of fire trucks, police cars, ambulances, etc. with portable sound equipment to be used in directing relief work, controlling crowds, and issuing announcements is recommended. A frequent complaint in this and other disaster situations is that instructions and information cannot be disseminated quickly and effectively in the disaster-struck area. It is also probable that the use of sound equipment by authorities to issue announcements will reduce the prevalence and harmful effects of the rumors that are a part of every disaster situation.

Appendix B-7

Report on a Porch Collapse Occurring in Chicago, Illinois, June 17, 1951

REPORT ON A PORCH COLLAPSE OCCURRING IN CHICAGO, ILLINOIS, JUNE 17, 1951

The following report concerns some social-psychological effects of an accident which occurred in a private home, involving the members of an extended family circle. During the course of a large party, a second-story porch collapsed, killing one person and injuring nine others.

This report is based upon intensive interviews with eleven persons who were either directly involved in the accident or who personally witnessed it. The interviews were obtained by three members of the Disaster Research Team within a period of 96 hours following the event. Most of the intensive interviews were tape recorded. They were supplemented with a number of brief, informal interviews and the observations of the interviewers.

A study of this event provides suggestive data on at least three social-psychological problems found in disasters: (1) the relationship between strong social bonds and emotional responses to crises; (2) the affective reactions of children to disasters; and (3) the relationship between disasters and the development of hostility and resentment.

The Pre-Crisis Situation

On the evening of June 17, 1951, approximately 70 persons were attending a party given in honor of a thirteen year old boy who had observed his Bar Mitzvah (Jewish coming-of-age or confirmation ceremony) the previous day. The party was held in the home of the boy's parents, who lived in a second-story apartment of a 24-flat building. With the exception of one or two families, all the persons attending the party were related to one another, the Bar Mitzvah being, traditionally, an occasion for an intimate gathering of family members and relatives.

The guests filled the second-floor apartment and the first-floor apartment of the hostess' sister, which was directly underneath. Some overflowed on the back porches of both apartments. After dinner, the children congregated outside the building to play ball, and most of the men went out to watch them. Two persons were sitting on the back porch of the first-floor apartment, and eight others were on the second-story porch above them. The remainder of the guests were scattered throughout the two apartments.

The Crisis Period: Initial Responses to Danger

The aunt of the host, who had just arrived at the party, walked out on the second-story porch to greet the guests there. One of the men arose to give her his chair. Suddenly, and without warning, the second-floor porch supports splintered, and the floor gave way. One end dropped, as if it were on a hinge, and crashed on the porch below. Two persons were thrown fifteen feet to the pavement below; the rest clawed frantically at the railings for support, and hung on.

One of the persons who fell from the porch was the aunt of the host, aged 68. She died of an internal hemorrhage a few minutes after arriving at the hospital. The fall of the other person, a man aged 29, was broken when he tumbled on top of the aunt. He sustained spinal and bone fractures. The remaining six persons clung to the railings and posts of the dangling porch. The efforts to rescue them on the part of other party guests were checked by the fear that the whole structure would collapse under more weight. Within five to ten minutes, the fire department arrived and extricated the persons on the upper porch. All of these persons suffered some bodily injuries, including bone fractures, abrasions, cuts, and bruises. In addition, one of the two men on the lower porch suffered minor arm and head injuries.

The initial behavior of the persons directly threatened—i.e., those who were on the upper and lower porches—appears to have been reflexive and automatic. They attempted to catch hold of posts or railings to prevent their fall. This reflexive behavior was followed almost instantly by a realization of the threat of bodily danger, which was expressed overtly in hysterical screaming and uncontrolled bodily tremors. Respondents reported their feelings while clinging to the porch as a "numbness," a feeling of helplessness, and an inability to think clearly. One woman, the hostess of the party, described her experience as follows:

> I was right out there. On the porch. See my arm, here? I was jammed in against the corner post, trying to hang on for my life. (Do you remember how you felt, right at first there?)* Oh — I can't describe it. I was shaking like a leaf and just sick over what had happened. And trying to hang on. And I was screaming. (Do you remember what thoughts were flashing through your head, there at first?) Thoughts? I didn't have any thoughts. I was numb with fright. Oh, I just can't describe it. It was horrible! (What do you mean?) Everything. That awful crash and everybody shrieking hysterically, and nobody could do nothing at all.... We were all hanging on for our lives. We were afraid to move for fear the whole porch would collapse on us. We just hung on there. We felt so helpless. Some of the other people tried to get us down, and people would shout: "Get away from there, don't go up. The porch won't hold you. Don't go near!" And there we were, and those two down on the pavement, and there was nothing anybody could do! ....There was no warning, nothing at all. All of sudden the porch just gave way and there was sound of lumber ripping, and then we went down. It didn't drop straight down flat, it went down there on one side and stayed hanging up there, slanting....you just can't put it into words. It's not like that at all. I was—petrified. I guess I was just hysterical. (How do you mean, hysterical?) I don't know. I'm not even sure that I was aware of what was going on. I was screaming, and—it was so sudden! It was a shock! I was just numb. It was like I was doing things without knowing. That's it. I was acting like crazy and it didn't seem to be me at all.

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* Remarks in parentheses are those of the interviewer.

A somewhat similar initial reflexive action was reported by a man who was sitting on the first-story porch when the one above came crashing down. He stated:

> (Where were you when the porch fell?) I was sitting right underneath it....It would have (reference to porch falling upon him) if I hadn't ducked. Don't ask me how or why I ducked, because I don't have the faintest idea. I don't even remember doing it. All I remember is that all of a sudden I was sitting on the floor with the porch just above our heads. I don't even remember getting out of there. I must have scrambled through the opening there leading down but I don't remember it. (Did you hear the noise when the porch ripped loose?) Yeah, I heard that. I must have ducked then, but it must have been just instinctive, because I don't have no memory of doing it....(How did you feel sitting there on the floor with the porch just above your head?) Feel. Not a damn thing. I wasn't even conscious. (You were unconscious?) No, not like that. If I'd been unconscious I couldn't have gotten down off the porch, and I done that right away.

As in the case of the persons who were on the porches, the sudden and unexpected nature of the accident also caught the other guests completely by surprise. Those who did not directly witness the accident variously interpreted the crash of the porch as the dropping of dishes in the kitchen, the sound of an automobile accident nearby, or the sound of an ash can falling down the stairs. However, the screams which followed almost immediately led to the interpretation that harm had befallen some of the other members of the party.

Persons in the kitchen on the second floor, who were directly next to the porch, were apparently the first to perceive the nature of the accident. They reacted by screaming loudly and running down the stairs and out the building. As they ran they communicated to others the fact that the porch had collapsed.

Since the guests were scattered throughout the two apartments, few persons knew where their spouses, children, or immediate family were. This factor, combined with the fact that practically all the guests were related and hence emotionally concerned, appears to have created a tremendous initial anxiety which was expressed in the form of screams, shouts and frantic seeking for kin. Virtually all the guests interviewed described this behavior of themselves and others in terms of "hysteria" and "panic." The following excerpts from the interviews present a more detailed picture of this behavior.

1. A woman who was sitting in the first-floor apartment watching a television show:

> I was inside when it happened. All we know is that we were sitting in the house, watching Eddie Cantor and his program, on the first floor--that's in the S____'s apartment (the sister of the hostess). We were mostly women inside. Most

of the men were outdoors watching the kids playing ball in the alley. You see, the apartments aren't very large, so the party was held in both of them--that is, on the first and second floors, and everybody was scattered around. That's what made it so bad. When it happened, nobody knew where anybody else was, and when we heard the crash, everybody thought it was his own relative that was in the accident....(How did you know there had been an accident?) Well, like I said we were watching Eddie Cantor, and all of a sudden we heard someone screaming. We heard that ripping sound, and then we heard a loud crash. I just knew my husband was in it, I don't know how, because for all I knew he might have been out in the alley. (Which did you hear first--the screams or the porch falling?) I don't know. It all came so close together and we were so confused by it all, that I didn't try to figure it out. I guess I must have heard the ripping sound and the crash first, and then the people screaming. (You say you were confused by it all; what do you mean?) Well, we didn't any of us know what had happened. As I said we heard those noises, but they didn't mean much of anything to us, except when we heard the screaming, and then we figured something awful must have happened. I guess we thought at first that it was an automobile accident that happened out on the street or in the alley or somewhere or something like that....Some of the people were out in the kitchen, and they must have seen the porch come down; they came streaming through the apartment on the way around through the front door and to the back yard....So everybody poured out of the house and into the alley--it was like a panic; I guess everybody felt like I did that his own relatives had been hurt; everybody was screaming and running just as fast as they could to get out there and see what had happened. (You say it was like a panic; what do you mean?) Just that everybody was running and screaming, and nobody seemed to know what he was doing....My impression was that they were all panic-stricken. They were milling around like a herd of cattle; nobody was doing anything but screaming and trying to find their loved ones. I guess that's what almost everybody was doing--trying to find their husband or wife or children, and everything was such a mess that they were hard to locate in all that milling around.

2. A woman who was standing in the first floor hallway at the time of the porch collapse said:

> Another lady and I were standing in the hall talking and we heard a loud crash and we thought that....oh! the cook had dropped a tray of dishes or somethin' by the crash....And this lady--she ran through the hall and hollered: "The porch fell; I was on the porch." So then we made a mad dash down the stairs into the alley....most of the women were hysterical

> because they thought that their husbands were all out on the porch. We had gone for a walk and we didn't know where the men were. Most of the women were running around looking for their husbands and the husbands were running around looking for their wives.

3. Another woman, who was also standing in the hallway, stated:

> We heard a terrible crash. We thought it was the dishes in the kitchen. Then the panic started. Every woman ran for their husband; every husband ran for their wife; and everybody just ran for their own....And nobody knew what had happened to anybody for some time....Well, I myself I was so hysterical that I can't describe it to you.

As is indicated in the above excerpts, the first concern of the persons not directly involved in the accident was for the members of their own immediate family. A number of the women became so hysterical that for a considerable time they were unable to locate members of their family. In fact, the level of anxiety and collective excitement was so high that some persons were unable to recognize their own spouses even though they were directly in their line of vision. At least two women reported this inability to perceive members of their family who were clearly in sight. One case is cited below in some detail. (This is the same woman who is quoted in Paragraph (1) above:

> (Do you remember how you felt or what you thought when you first got out there and saw what had happened?) I was thinking about being left a widow. Somehow, I just knew my husband had been killed. I don't know what gave me that feeling, but I was sure that was what had happened. As a matter of fact, I didn't even know whether he was upstairs or down or where.... I remember while I was running around to the back trying to get used to the fact of being a widow and what it would be like—you know you think at a time like that, as though suddenly you can see the past and the future all in one thought. I think it's that that kept me from seeing my husband when I got out in back. He was right in plain sight. But I was so sure that he had been killed that in the moment of being stunned I just couldn't recognize him. It's funny, I can't account for that, but that's exactly the way it was. I was so <u>sure</u>! (Can you tell me more about that?) Well, I just couldn't see him. I could see women hanging on the upper railing of the porch. I could see those two on the pavement....I saw all that, but I was really looking for my husband; the only thing, I wasn't looking for him in the yard, I expected him to be on the porch or under it....I didn't really see the other people. Everybody was rushing outside and milling around, but I didn't really see them. I was too busy looking for my husband. I somehow knew they were there; everybody was screaming at the top of their lungs, and

> nobody knew but that his family was hurt or killed, but I didn't pay any attention to them; I was too worried about my husband. I don't know why I did like that. You see, I didn't know what it was at first, not until I actually saw all that and actually got the picture in my mind, and then I was so sure that it was my husband. (Have you any idea why you felt this way?) Not a bit. It seems to be just how your mind works at a time like that. A body seems to think the worst. Terror seems to grip you, and you get the worst possible picture in your mind and you can't think of anything else. (What was the picture you had in your mind?) Why, I just sort of saw my husband lying out there mangled or crushed. It was a terrible thought....When I got out there and saw what had happened, I kept looking at the porch to find him. I don't know why I didn't look anyplace else, because he was right out there in plain sight. (How long was it after you arrived on the scene before you saw your husband?) God! It seemed like a lifetime before I saw A____. I guess it wasn't so very long--about the time the fire department came and started setting up their equipment. I don't know. I may have seen him earlier but just didn't recognize him.

The hysteria-like behavior, partially engendered by concern for immediate family members, appears to have been further sustained by the scene that met people's eyes when they ran to the back of the building. The woman lying on the ground with blood gushing from her mouth, ears and nose, provided an especially strong emotional shock. One woman who ran around with the crowd to the back yard noted:

> Even when they got around to the back they just stood there and screamed and looked--I guess everybody was shocked by what they saw there, like me. It was a horrible thing, with that old lady lying there in a pool of blood and that other man fainting, and those people hanging up there screaming, and not knowing whether they were going to crash down like those other two.

Another woman stated:

> It was the most horrible experience. I would never in my life want to witness anything like that. It's bad enough when you don't know people; but when they're friends of yours who you've known for the past 20-25 years, it's horrible. To see the aunt lying there bleeding--she was just bleeding!

Still another respondent noted that the worst part of the whole experience was "the shock of seeing that old lady lying there in all that blood and the people up on the balcony dangling over the edge and screaming."

The hysteria-like expressive behavior reported by those directly involved was corroborated by more objective observers. A woman in a neighboring building noted:

> I was in the kitchen. But when I heard all that noise and people screaming, I went out onto the back porch and saw what was going on. They were all gathered around there shouting at the top of their lungs. I thought the world was coming to an end, or something like that. I never heard anything like it in all my life.

The Crisis Period: Children's Behavior

Children's reactions appeared to have been similar to those of the adults. According to the best estimate that could be obtained, there were approximately 15 children present at the party. They ranged in age from 6 to 15 years. Most of them were in the alley behind the apartment building playing ball when the porch collapsed. Therefore, they were among the first to witness the accident and they saw the woman who was thrown to the pavement from the porch. The sight of the woman bleeding profusely from her mouth and ears seems to have produced a severe emotional shock. Eye witnesses reported the children reacted by screaming, crying, and clinging to each other. A fifteen year old girl who lived in the same building was especially sensitized to the children's reactions. She stated:

> I heard these people coming out and screaming and I saw this man lying in the yard and I didn't know what was wrong. All I knew was that everyone was around him and this woman—I didn't look at her but everybody--a lot of kids were pointing to her and saying, "Oh, look at her," and I wouldn't look that way and then my mother told me not to look that way and I didn't. I never seen anything like it. I'd never seen kids like that. They were crying and hanging on to each other. The kids--this one boy I know at school--he was really crying terrible. Well, everybody was crying, but I never saw anything like the way he cried. I talked to him afterwards and he kept saying, "If you could have seen that woman, if you could have seen that woman!" If you could have seen the kids that would have scared you because they were all standing there and clinging on to each other and just looking at that. That must have been a sight. (How did seeing the kids affect you?) Well, I was very surprised because I never could imagine seeing boys crying like the way they did. I could imagine them being scared like--but they were actually crying out and just sobbing like terrible. It was awful.

The Crisis Period: Informal and Organized Rescue and Relief Efforts

According to some of the respondents, the hysterical behavior on the part of most of the guests hampered the efforts to rescue the persons who remained hanging on the second story porch. Others indicated that there was some effort made at rescue but the situation was such that no one could assist. In any case, it appears fairly clear that the informal relief efforts which

were attempted prior to the arrival of the firemen and ambulances were primarily carried out by persons in the neighborhood rather than by the guests themselves. A nurse living in a nearby building witnessed the accident and went to examine the two injured persons who had fallen from the porch. She quickly decided, however, that there was nothing that she could personally do. Several neighbors living nearby immediately called the fire and police departments. Other neighbors brought over a ladder in an attempt to get the persons from the porch. When this failed others drove an automobile next to the porch. Several persons tried to stand on the top, but it started to cave in because of the weight. Before any persons were actually rescued from the porch, firemen had arrived and took charge of rescue operations.

The firemen and ambulances arrived within a period of five to ten minutes after the porch collapse. The general consensus among the respondents was that the relief work was handled with efficiency and dispatch. One man, typical in his remarks about the city authorities, noted:

> Their service was exceptional and they are to be commended. The fire department, that first bunch of the fire department that came there came there in about 3 to 4 to 5 minutes tops. I mean it seemed like a long time because we were waiting there in panic; but they are definitely to be commended.... Their work was exceptional and fast; they done a beautiful job.

However, the arrival of the ambulances and fire department failed to quell the hysterical behavior on the part of some of the guests. A number of respondents reported that at the hospital, where the injured and shock cases were taken, the screaming and crying continued unabated. This is illustrated in the following excerpts from interviews with people who went to the hospital:

> The people at the hospital were cuttin' up worse than they did at the accident. There was more screaming goin' on there than I ever heard before. It sounded more like a nuthouse than a hospital. I'll tell you, I'm not used to seeing grown men bustin' down and bawling like they were doin!

> The hospital was full of them; we were all over the place. I think it was worse there than at the scene of the accident. Honest, they just overran the place, running around and screaming and yelling--you never saw such a madhouse as that was. The nurses kept trying to quiet everybody down, but they just kept on screaming. Mr. F____ (husband of the woman who died) was the worst one, though. He kept walking around saying, "We've been married 52 years, happily married for 52 years, and look at what happened to her." It was pathetic to watch that poor old man wandering around like he was lost, bawling like a baby, and looking like he was dazed. It just tore your heart out to see him. He was so pitiful. And their children were there too, crying and screaming--oh, it was a sad sight.

The Post-crisis Period: The Development of Objects of Blame and Resentment

One of the initial objects of resentment among the participants, particularly among those who went to the hospital for emergency treatment or examination, was the hospital staff. Several persons who had sustained injuries expressed resentment over the inability of the staff to X-ray them immediately after emergency treatment. One man reported:

> (What happened after you got to the hospital?) Hell, they looked us up and down, gave us some pink, green and purple pills, and then they told me to come back today for an X-ray to see whether I was hurt. That's the damndest thing I ever heard of, keeping union hours at a hospital. What the hell do they do when they get an emergency case in "after-hours?" Tell 'em to come back in three days? Lord, I never heard of anything like that.

A woman stated:

> (What happened at the hospital?) Well, they just examined us. They asked me a few questions and gave me some sedative and told me to go home and try to rest. They cleaned off my husband and put some patches on him. They told him they couldn't X-ray his arm but that it looked like it might have some internal damage, but they couldn't X-ray it then. That's the stupidest thing I ever heard of. Can you imagine that, it's "after-hours" so they can't give an emergency examination? That burns me up. What if my husband had been really in pain. Would he have to wait three days before he could get any treatment?

The major resentment, however, was directed toward the landlord of the building, who was held responsible for the collapse of the porch. This resentment was probably stronger than normally would have been the case because the person who gave the party and other tenants in the building had repeatedly complained about the poor condition of the porches and had asked that they be repaired. The landlord was blamed not only by the persons directly involved in the accident but also by other persons who were only peripherally concerned (e.g., spectators, neighbors, etc.). However, the expressions of resentment were not confined to the landlord of the particular building involved, but were directed to landlords in general. The accident served to bring out a number of resentments towards landlords as a category—e.g., their requirement of illegal payments on the part of tenants to obtain or retain their apartments; their failure to make other needed repairs and provide legally-specified decorations, etc. One woman noted:

> The first thing that came to everybody's mind was the conditions of the country at this time. I mean the housing situation and the landlords and the bonuses they are taking and they wouldn't do anything for you; they don't do any repairing or fixing; all they do is take bonuses for apartments and things like that; that was everybody's reaction....that's the only thing they were talking

about; 'cause everybody was angry at everybody's landlord right at that time. (When was this?) Oh, this must have been about an hour later when they had taken all the people to the hospital and while the firemen were pulling down the porches and roping off the alley. I think everybody's reaction was the landlords first, you know. Because like us we lived in this building 11 years and 2 years ago we had to give them a bonus; to keep living here we had to give them another bonus. Now that isn't right. I mean, it isn't fair; he had just bought the building and the minute he bought the building he said he was losing money....So to keep the peace and quiet around here we gave him a bonus. Now our bonus time is up in December; and he will be back for another bonus....(You said people were talking about landlords?) Everyone you talked to--quite a few people I didn't even know--but when something like that happens everybody talks to everybody else and everyone just kept saying about the landlords not fixing anything or doing anything and just taking the rent; why we have all been doing all our own decorating for years....So I guess that was their first reaction--if the landlords would take care of things that sort of thing wouldn't happen.

Another woman noted:

You know, we've been complaining for a long time about the condition of these porches, but do you think anyone does anything? You bet not! Tenants are supposed to take anything these days because of the housing shortage, but believe me someday all that's going to be changed!

Still another woman stated:

Everybody says it's the landlord's fault and I certainly wouldn't want to be in his shoes right now. Why by the time they get through suing him he'll wish he never went into the real estate business!

The strong hostility against the landlord was directly expressed by some of the participants at the inquest the day following the accident. According to a newspaper account*, the building agent, who was questioned during the inquest, was "harangued" by the woman who gave the party and was attacked with fists by the son of the woman who was killed. The following is a quotation from the newspaper article:

The inquest into a woman's death in a porch collapse was thrown into an uproar Monday when her son swung his fist at the building's agent. Spectators stepped in and held back M_____ F_____, son of Mrs. S_____ F_____, 72, of _____ (Address in Chicago). "My mother's lying out there," young F_____ said, "and he (the building agent) should be lying out there too."

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* Chicago Daily News, June 18, 1951, p. 1.

The Post-Crisis Period: Emotional and Psychosomatic Reactions

One of the most prominent after-effects among the persons who were interviewed was their mental preoccupation with the event for days afterwards. Respondents reported that they were unable to get the accident off their mind, that it became an obsession which dominated their thoughts, making it impossible to carry out normal routines or to concentrate on other activities. Persons interviewed three or four days following the event reported that they were just beginning to be able to think of other things and get back to their normal routines of living. Others were still mentally preoccupied and unable to concentrate on their usual activities. The hostess of the party noted:

> I haven't done a thing, not a thing, since it happened. I've just been tearing around here like crazy, couldn't put my mind to anything, or do anything. I haven't even made any attempt to clean up the apartment—you can see what was left of our refreshments out there on the kitchen table. I couldn't even concentrate to put them away or start washing and cleaning up. I tried to force myself to it, but it just didn't seem important. (How do you mean?) Well, after what happened, I just couldn't get interested in it. It doesn't seem worth worrying about. If I can—can get through this day with the funeral and all without going crazy, I think I can get around to it tomorrow.

She later added:

> You can't think clearly at all about it. All you do is feel. You relive the experiences over and over again, and you can't get away from them. It's like a—a—an obsession, you just can't knock your mind out of the rut. I haven't been able to sleep or work or think since it happened. I just keep going over and over it in my mind.

Another woman stated:

> 'Course my mind is more or less a blank these last couple of days. You can't really concentrate on anything; I mean you really don't want to. You keep thinking about it all the time....I just keep seeing them lying there and seeing them—the way they are hanging on the porch—that terrified look in all their faces—all that terrific fright on everybody's face—....but I think you can get over it after a while....I don't know how many packages of cigarettes I smoked. I'm quite a heavy coffee drinker, so I've had a couple of cups during the night—but I couldn't think of going to bed and I couldn't think of doing anything—I just keep walking here....That's what I did. I haven't gone out 'til yesterday. Yesterday was the first day I got dressed and went out. Then I walked over there to find out how they were but they were gone and then I did a little shopping yesterday for the first time since Sunday. But other than that I haven't done anything. I haven't even watched television; and I couldn't even stand the

> radio. I didn't go to bed until Wednesday morning. Sunday night I didn't take my clothes off until 5 o'clock in the morning. I just couldn't think of going to bed, you know—the thought of lying down after seeing all of them lying down like that—I couldn't make up my mind to get to that bed—and ordinarily I like to lay in bed—read and sleep late in the morning if I possibly can. I just couldn't. I couldn't even sit.

One man reported:

> You do think about it. It would be folly to say that you don't. You're in a state more or less of iodine on a wound. The shock is there and you don't feel it while you cut yourself, but the burn, the sting of the iodine reminds you that you've been cut, and, although we were fortunate enough to get away without any injuries, yet I—to say that you didn't tremble after it—to say the realization of the mishap was not there would be folly. It's definitely a butterfly feeling in the stomach. It's a thing that you try to dispel from your mind but you just won't let it....the thought is continual. I mean you try to avoid conversation of it; you try to avoid thinking of it and yet as soon as somebody brings in catastrophe, it seems to hit you again, whether be it that one or be it someplace else. I mean, it's one of those—you read about a plane wreck and then you think of your porch; you read of an automobile accident, and your porch is there.

With this mental preoccupation with the event respondents reported a feeling of unreality. Most persons reported that they still were unable to realize that the disaster had actually happened to them. This feeling of unreality appears to have been both an initial reaction and one that persisted for several days following the accident. (All of the interviews on which this report is based were obtained within a period of four days following the event so it is not possible to indicate how long this and other reactions continued beyond this time.) One woman noted:

> It just didn't seem real. It hasn't seemed real to me since then and it's only this morning that it's beginning to feel like it really happened (interview obtained on 2nd day after accident)....it just wasn't real. I guess I was just too close to it. You know, a thing like that, you get so wrapped up in it that you lose your perspective. You can't think clearly at all about it.

One man noted:

> It happened so fast that you just don't get a chance to realize—because you're at a party with all your friends, you're having a good time and ten seconds later the catastrophe is there. What caused it? How it happened? What caused it, how it happened—be it negligence, be it element or a cause of disruption of any type—it's there—you are—you're facing a different reality than you were before.

The woman who was the hostess of the party expressed some guilt over the fact that the accident had occurred in her home. This feeling of guilt appears to have been considerably sustained by the action of other people who kept reassuring the woman that she was not to blame. This woman noted:

> They say--everybody keeps telling me that it'll settle down, that I'll put it out of my mind. I know they mean well these wonderful friends of mine. Why, even Mr. N____ (the man who fell from the porch)--he has a business to take care of and a family and he's flat on his back in the hospital now because he was on the back porch with us. God knows he must have enough worries of his own right now. But he took the trouble to call me up and tell me not to blame myself for what happened, that it was just an accident. That's what they all say but I know that as long as I'll live I'll never forget what happened. You just don't forget a thing like that. (Would you tell me more about that feeling?) I just wanted to get it out of my head and it wasn't like me at all....But this horrible thing. I knew there wasn't anything I could do about it. It had— It had happened and nothing I could do would change it. People kept saying to me, "It's God's will that Mrs. F____ was killed and there's nothing you can do." I knew that was right but I kept thinking about her and the others....how she just got out on the porch five minues after she arrived here, when it fell in.

Virtually every person interviewed, including those who were not directly involved but only witnessed the event reported some acute physiological disturbance which they attributed to the accident. The severity of these disturbances did not necessarily correspond to the degree of physical involvement in the accident. Some of the persons who reported the most extreme emotional upsets were those members of the party who were not involved in the porch collapse or who did not directly witness the accident. The most common physical reactions appear to have been nausea, loss of appetite, sleeplessness, inability to relax and feelings of tension.

Even neighbors with no personal ties to those who were directly involved but who merely witnessed the scene from afar reported physiological disturbances. One woman said:

> I thought I was going to be sick. I'm not used to seeing things like that. I didn't vomit but I felt like I was going to. It was just a horrible feeling, knowing what was going on down there, all that blood and everything....I keep seeing what I saw there on the porch and I haven't been sleeping so good the last three nights.

There was some indication that the continual talk in the neighborhood about the event might have been a factor in the persistence of the physiological disturbances. People were continually reminded of the accident. In at least one reported case, children were definitely affected by talk about the incident. A mother, not directly involved in the accident or even acquainted with the people at the party, noted:

> Well, the little ones (one child five years of age, the other younger) seem to be affected by it. I'll tell you, right after it happened, the little boy got sick. He just threw up all his supper, and I had to put him to bed. I don't know why he should get sick, because he didn't get close to it and you couldn't really see very much from here. I guess it was just all the excitement and everything. But he's been having nightmares ever since then. I guess I must have upset him, because I was awful upset right after it happened. My husband says I was white as a sheet when I came in and told him about it and he had to quiet me down. And then I guess we talked about it more than we should. Yesterday my boy said, "Don't talk about that any more. Don't talk about it." So we haven't been talking about it in front of him any more, it seems to upset him.

Two respondents reported different psychosomatic reactions following the accident. In neither case was the person directly involved in the porch collapse. One woman, aged 36, reported:

> When we came home I could hardly walk. My knees and my ankles were so stiff. So I said to my husband, "I can't walk." So he just laughed and said, "Well, I'll push you." So he pushed me all the way home to the corner and right up the stairs. They were as stiff as a board and for days it just stayed--and all of a sudden it just goes. (How long did it last?) Oh, about two days after. Yah. I could hardly drag them....I guess the fright settles in some part of your body and it went to my feet. I could walk, though, but not like normally. I mean it was--oh, I don't know, just stiff, that's all. Just petrified, I guess.

The other woman stated:

> My own reaction to it was pretty bad. I needed treatment. You see, I have a spastic colon that's bothered me for a long time, and any excitement like this just sends it off something fierce. After I got back home here, my stomach just killed me. I don't know if you know what a spastic colon is like, but it's worse than a toothache. I had a terrific pain in my abdomen, as though I were being ripped apart inside. (When did you first notice this reaction?) While I was at the hospital but it got worse after we got home. They gave me some sedatives but it didn't do much good.

Summary and General Conclusions

The findings of this study are suggestive rather than conclusive in nature. However, the following tentative conclusions about the problems advanced in the beginning of this report emerge from an analysis of the data collected in this study. They should be considered as propositions to be tested in more systematic fashion in further studies of disasters.

1. The Relationship Between Strong Social Bonds and Emotional Responses to Crises

A crucial consideration in the study of human behavior in disasters is the nature and strength of the person's psychological involvement. A knowledge of the spatial or physical involvement of persons or groups is not sufficient for understanding their behavior. People may react very strongly to a disaster in which they are not physically involved or bodily threatened. This occurs if there exists a strong psychological identification with actually threatened people. This is in accord with the principle that a perceived threat to an object which is closely identified with the self will be experienced as a threat to the self. In some cases, this indirect threat may have more serious psychological consequences than a direct bodily threat.

a. The stronger the social bonds among the members of a group, the more intensely will they respond to perception of danger to any of the individual members.

Probably the outstanding feature of this disaster was the very strong emotional reaction of those people who were never themselves in any physical danger. This may be explained partly by the fact that almost all the adult guests were closely related to one another. Consequently, there was a very strong sense of psychological identification with one another. Their familial ties were of the most intimate and primary sort. Thus, when some of the guests were bodily endangered, or thought to be endangered, those adult guests who were in no physical peril likewise felt themselves threatened. The first concern was for the nearest kinfolk, such as spouses for each other and parents for children, but once it was established that these were safe, the emotional apprehension was extended to more distant family members, to the relatives who were in danger on the porch. Neighbors, on the other hand, who were not identified with any of the guests, did not show any such immediate emotional reactions.

b. The stronger the identification with the victims of disaster, the more intense will be the emotional reactions to perception of the victims.

In this disaster, the sight of the battered and bloody body of the woman who had fallen from the porch, was in itself a shocking experience. Sheer unfamiliarity with such a sight

probably accounted for some of the intensity of this reaction. Probably just as important, however, was the fact that practically all the adults present at the party were deeply identified with the victim. The perception of a loved one in such a condition, as several respondents themselves reported, was the source of great emotional shock. The evidence suggests that the reaction would have been much less intense, in the absence of such identification.

c. People who are deeply involved, psychologically, in a disaster, however physically unaffected they may be, cannot be depended upon to function effectively in the immediate rescue and relief work.

In this particular situation it appears that the immediate rescue work was attempted by neighbors who had no particular kinship or social ties to the endangered or injured people. The strong emotional involvement as well as the shock engendered by the sight of the bleeding body seems to have prevented any effective rescue or relief work on the part of the adult guests who were not themselves in physical danger. To a considerable degree they wanted to do something to alleviate the situation, but because of their emotional excitement they were unable to coordinate their own individual activities and to cooperate with their more calmly-acting neighbors. Instead of guiding their activities along the line of aiding the endangered and injured people, they were only able to give vent to their feelings in hysterical expressive behavior.

2. The Affective Reactions of Children to Disasters

It is the general belief that the reaction of children in crises is primarily dependent on the reactions of the adults around them. However, the responses of the children in this disaster suggests that this general proposition does not always hold. It would seem that under certain conditions, children will respond directly to the event, or to other children, before they react to the behavior of the adults in the situation.

a. In this disaster there is some indication that the affective reactions of the children, which were generally the same as those exhibited by the adults, were more influenced by the sight of the body than by anything else. At least two factors seem to have been responsible for this. First, the children were all playing outside and saw the woman fall from the collapsing porch. From the very start, their attention was caught and held by an emotionally shocking event. Secondly, almost immediately the children were able to see that none of their parents were among those in danger. Unlike most of the adults who had to ascertain whether their immediate kin were actually involved, the children knew differently. The direct perception of the disaster and lack of physical involvement with the disaster-struck persons, would therefore seem to have been largely responsible for the children's direct response to the event.

b. What occurred in this disaster further suggests that in times of crises, children are much more sensitized to the reactions of their age-group than is commonly supposed. In this particular situation, the children interacted more with one another than with the adults. They tended to perceive and respond to the behavior of other children rather than to that of the adults. Whether this was a function of this particular crisis situation, or is a more general tendency is impossible to say from this investigation. Only comparative study will establish whether this is a general reaction of children in disasters or whether it occurs only under particular circumstances. This study suggests that important differences in behavior may be expected of children in different age groupings, and in different social situations (e.g., when they are with other children in peer groupings, with adults in the family, etc.). Hence, further studies should attempt to determine the differential reactions of children according to age and the social situations in which they are found at the time of the impact of the disaster.

3. The Emergence of Hostility and Resentment in Disasters

Feelings of hostility and resentment frequently emerge in connection with assessing the blame or responsibility for disasters. There is a widespread belief that this expression of hostility is a matter of an aggressive reaction to the deprivations posed by a disaster and is capable of being discharged against any target. The choice of target, according to this conception, is an irrational, fortuitous process.* The evidence from this study is contrary to this belief. The conclusions which are suggested by this case are presented in the form of hypotheses which may be tested by further data:

a. The choice of a target for hostility is based upon a previously-existent constellation of attitudes which comes into play when individuals assess the blame for the event. The process of laying blame is an attempt to understand what has occurred in a rational manner so as to prevent a repetition of the event or similar events.

In this case, there existed a well defined set of attitudes and expectations toward landlords which was built up in the course of the experience of recent years. These people were firmly convinced that landlords were working solely for their own advantage at the expense of tenants. There was also the specific fact in this case that the landlord of the building

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* See, for example, Veltfort, H.R. and Lee, G.E., "The Cocoanut Grove Fire: A Study in Scapegoating." Journal of Abnormal & Social Psychology, Vol. 38, Suppl. 138-54, (1943); and Janis, Irving L., Air War and Emotional Stress. The Rand Corporation, New York: McGraw-Hill Book Company, 1951, Ch. 7.

had been repeatedly requested to repair the porch and had ignored these appeals. Given this set of experiences and attitudes, the choice of target in this case was quite reasonable. As soon as people began thinking about the cause of the disaster, the responsibility of the landlord became their most logical conclusion. The fact that the resentment became generalized, that blame was not confined to this particular landlord but was soon extended to include all landlords suggests an attempt to prevent a recurrence of such disastrous experiences. The reasoning tended to take the following form: this landlord is like all landlords; therefore all landlords are equally responsible, and if allowed to continue their activities, no one is safe.

b. The intensity of the hostility directed toward the target, or object of resentment, is related to two factors: (1) the degree to which normal expectations of behavior and established values are violated by the target, and (2) the intensity of previous feelings toward the target. One or both of these factors may be involved in any situation.

In the case of blaming landlords, both of these factors were operating. First, the incident constituted a major violation of the expectation that landlords are responsible for the safety of a building. In addition, strong feelings against landlords existed prior to this occurrence. The immediate shocking event, plus the previous feelings, resulted in the great intensity of hostility. It is questionable whether one of these factors alone could have resulted in the intensification of hostility to the point of overt aggressive action. To illustrate: In the case of the persons who developed considerable hostility toward the hospital for what they considered improper care, no overt aggressive actions resulted. In this case, there was only a violation of expectations and not a set of previously aggressive feelings toward the hospital. This point, however, should be tested by further research.

c. Belief in the target as responsible for the disaster is more firmly entrenched, and hostility toward the target is heightened, by social interaction. The more general these attitudes are in the group, the greater the belief, and the more intense the hostility which is developed in the group as a whole.

In this case, individuals discussed the occurrence among themselves. As they discussed the landlord, and landlords as a class, the fact that others agreed with them intensified their beliefs and feelings. It is doubtful that the resentment could have reached the proportions it did had not a considerable number of them already possessed those attitudes.

Appendix B-8

Report on a Mock Air Attack in

Chicago, October 8, 1951

REPORT ON A MOCK AIR ATTACK IN CHICAGO, OCTOBER 8, 1951

DESCRIPTION OF THE MOCK ATTACK

"Operation Defense," a mock enemy air attack upon Chicago, was scheduled to occur at 12:03 P.M. on Monday, October 8, 1951. According to the advance notices, the operation was designed as "a way to study the problems that might arise in an actual emergency" and "to show the public what kind of reception the city has planned for any enemy aerial raiders." A further purpose of the mock attack was to demonstrate "the city's ability to combat fires after an air raid."

The Director of Civil Defense for Chicago pointed out prior to the attack that the mock raid "will be so realistic that some people may get the notion a real attack has taken place." He added: "There will be absolutely no need for panic—the demonstration will simply be an exercise to show people that the military services and civil defense agencies will join to provide the best protection possible."

The area to be covered by the attack was announced as the "Loop and Near North Side"—an area comprising the central business district of the city, a portion of the manufacturing and wholesale trade district, and the hotel and rooming house district. The population in this area is predominantly composed of office workers, sales personnel, shoppers and casual street crowds, workers in the clothing and other industrial plants, and residents of the transient hotels or rooming houses in the district.

The attack was scheduled to begin at 12:03 P.M. when the alert to the approach of hostile planes was to be sounded from sirens mounted on the elevated railway structure in the Loop. At 12:08 P.M., Air Force and Navy planes simulating an attack were to sweep overhead. As the planes made their mock "passes," anti-aircraft guns on both ships and shore were to begin firing with blank ammunition. Smoke bombs were to mark the "hits" of the planes. This simulated attack was to continue for 15 minutes. At 12:23 P.M., the sirens were to announce "all clear." Then, at 12:27 P.M., firemen along the river bank between Wabash and State Streets were to use 80 hoses in raising a "wall of water," in a demonstration of how they might "save the Loop." The latter demonstration was planned as the opening event of Fire Prevention Week. The entire mock attack was conducted jointly by the armed services and the Chicago Civil Defense Corps.

This time schedule was followed rather closely in the actual execution of the mock attack. In a last-minute decision, however, police and civil defense officials forbade the firing of blank cartridges from anti-aircraft guns and naval pieces. It was later explained by the police commissioner that

"it was just too much of a chance to take on a possible panic. People would have been really scared if some office windows were shattered by the concussion." The actual "raid" was carried out by four Air Force B-25 bombers, flying at an altitutde of approximately 2000 feet. Six Civil Air Patrol planes followed to assess the "damage" caused by the bombers. They flew over the Chicago River area—which was designated as the central target for the attack—at altitudes varying from 200 to 500 feet. Smoke pots were set off on the north bank of the river to simulate bombs dropped. These were apparently the only smoke "bombs" that were used in the test.

PURPOSE OF OBSERVING THE MOCK ATTACK

A study of this mock air attack was undertaken in order to determine whether or not such tests would be of value in predicting human reactions under conditions of an actual attack. It was conducted under the assumption that the operation was to be "realistic" and, therefore, might simulate some of the conditions which would be met in an actual disaster situation. Accordingly, five members of the Disaster Research Team were assigned at various points in the area covered by the attack to observe the reactions of the population.

The points of observation were selected with a view to getting as wide a coverage of the affected area as possible and to sample the various types of population within this larger area. The points of observation and the type of district covered are given below:

a. Observer Number 1: Corner of State and Randolph Streets (Retail shopping district; point of heavy pedestrian and motor traffic; casual street crowds).

b. Observer Number 2: Corner of State and Van Buren Streets (Retail shopping district; heavy pedestrian and motor traffic; casual street crowds).

c. Observer Number 3: Corner of Van Buren and Wells Streets (Clothing manufacturing and wholesale supply district; predominantly office and industrial workers).

d. Observer Number 4: Corner of Wabash and Grand Streets (Combined business and rooming house district; residents of rooming houses, transient hotels; and casual street crowds).

e. Observer Number 5: West Illinois Street (500 North) between North Orleans Street and North Franklin Street (300 West) (Rooming house district; lower class population composed of both whites and Negroes).

The observers were given the following instructions: (1) to go to their points of observation at least fifteen minutes prior to the time scheduled for the mock attack and observe the nature of the activity in their area

at that time in order to obtain a base for comparison; (2) to be particularly sensitive to any changes in overt behavior of persons in their area at the time of the first alert and at various times during the raid; (3) to mingle with the crowds, listen to their conversation, and pay particular attention to how persons in their area defined the raid; (4) to engage in casual conversations with persons and attempt to determine their feelings with reference to the raid itself and the various official agencies involved in the test (Civil Defense workers, firemen, police, etc.); (5) to be as careful and specific as possible in making and recording their own observations. Each observer later prepared an independent report which incorporated his interviews, overheard conversations, and own observations during the attack. These reports form the basis for the statements which follow.

SYNOPSES OF OBSERVERS' REPORTS

A synopsis of each observer's report is given below:

Observer Number 1: Noise of sirens clearly audible, but not very sharply penetrating. Most people continued walking at the same pace as before. A few paused momentarily and looked up in the direction from which the sound came and then continued walking as before. About half a dozen people stopped at the corner during the first two minutes after the beginning of the sirens and looked around curiously as if waiting for something; in a minute or two they moved on. A few people apparently tried to locate the sirens; they looked down the street either with curious expressions or smiles on their faces. Judging from overt behavior, I felt that, for the most part, people were unconcerned about the whole affair; it didn't really involve them. This, I think, was borne out in some of the comments, e.g., "Some air raid they're having." Most people seemed to know about the fact that there was to be some such activity but they seemed a little hazy about exactly what was to happen and why. Their talking about the event seemed to be accompanied with little feeling. In between sirens and when no planes were overhead people acted in no way out of the ordinary. During the wailing of the sirens or when planes flew over, some people stopped or slowed their pace momentarily, looked upward or in the direction of the sirens, and then moved on. Motor traffic proceeded as usual.

Observer Number 2: Shortly after 12:00 noon, a nearby air-raid siren started blasting. There was no noticeable effect on the pedestrians or the motor traffic. A few looked around in an apparent effort to determine exactly where the siren was located, but nobody appeared disturbed or frightened by it. Three more blasts followed during the next 20 or 30 minutes and none of them had any more effect than the first. There was no evidence of any anti-aircraft fire or of planes "making passes" at the city. Only a few slow-moving observation planes were in sight. They caused one passerby to remark: "Are those the things that are supposed to bomb us?" Two people paused to stare at the sky and speculate about the maneuvers of the observation planes. A newsdealer and a woman selling charity tags got into a spirited discussion about the meaning of the several blasts. They failed to reach agreement about which were the "warning," "planes overhead," and "all clear" signals.

The great majority of people, however, appeared to pay no attention whatever to the test.

Observer Number 3: Sirens heard distinctly, although not very loud. Little reaction to sirens. Out of roughly 30 people in one block, two glanced at the sky briefly. People observed through a restaurant window were unaffected by the siren; either they did not hear it or didn't pay any attention to it. The conversations overheard were not concerned with the air raid. The sound of airplanes overhead caused only a few people to glance skyward. People passed a sign reading "Air Raid Shelter," not seeming to notice it, even when the sirens were blowing. The main points observed during the mock air raid in this particular area seem to be (1) that people went about their usual business, in their usual fashion, and discussed their own problems; and (2) little attention was paid to the sirens. Those who did seem to notice them were concerned only briefly.

Observer Number 4: Sirens could not be heard, although observer was only four blocks from the center of the area that was to be "bombed." Five men in Air Force uniforms were standing on a second story fire escape looking up at sky. Street crowds numbering approximately one hundred were boarding streetcars or walking at a usual pace. At approximately 12:07 four two-engined planes were flying south over the area at an altitude of approximately 2000 feet. About five persons among the casual street crowd looked skyward at the planes flying over, but the others did not even bother to glance up at the sky and continued their walking or waiting for the streetcar. On one corner, eight persons were waiting for a streetcar; none of the eight glanced upward; two Negro girls (aged approximately 20) were engaged in conversation concerning a new dress one of the girls had bought. Other conversations overheard at this time were not concerned with the raid. No persons in the surrounding rooming houses came out of their buildings or even looked out their windows. At 12:20 observer walked to State Street Bridge crossing Chicago river. Ten or twelve persons were standing at railing looking at the smoke from the "smoke pots" and the crowd of several thousand persons who were watching the water spraying demonstration at the river front. Heard several persons among this group speculating on what would happen if a "real" bombing occurred and making comments on the demonstration by the firemen. In general, the only attention directed toward the attack was on the part of those who directly witnessed the demonstration of anti-aircraft guns, destroyer escort, the low-flying Civil Air Patrol planes, and the "wall of water" display by the Fire Department. Among the persons who did not directly witness the demonstration at the river front, the only attention displayed was an occasional glance into the sky to observe the planes flying over. For the most part, however, even this was unusual. Most persons appeared to go on about their business without paying any noticeable attention to the event.

Observer Number 5: Alert sirens were not heard, although observer was just five and a half blocks from the demonstration area. Nothing appeared to be occurring in the immediate neighborhood which was even slightly out of the ordinary drabness of routine. It was lunch hour and virtually everyone on the street was going to or from lunch. No children were seen with the exception of a pair, about six or seven years old, playing on the stoop at 322 West Illinois. They never broke the tempo of their play at any time

during the raid. They did not look up when the heavy Air Force-type planes passed directly overhead. There were five restaurants in the area and people passed in and out of each of them throughout the raid. Their patrons were apparently wholly unaware of anything out of the ordinary. When the most noticeable point of the raid occurred--i.e., when the four Air Force planes passed directly over the intersection--there were 24 adults and no children on the street. During the moderate roar of the planes, eight persons took the trouble to look overhead. I noticed that one of these eight persons stopped walking, the others continuing. I did not observe a single person emerge from a building to view the raid. No windows were opened in any of the buildings. No one that I observed made a single remark to anyone else. The only group which took cognizance of this affair that I saw was one on the roof of a building next to the Merchandise Mart some three or more blocks distant. They were probably office workers and not neighborhood residents. This accounts for the total raid reaction which I observed. A Fire Engine Company in the area placidly ate lunch on schedule during the raid. The three-man crew of a Chicago Transit Authority wrecker at a CTA garage in the area wrestled on the sidewalk. They were among the above-mentioned eight who did take notice of the planes. In general, I observed nothing which wouldn't occur any time four planes flew as low as these did.

ANALYSIS OF THE INTERVIEW AND CONVERSATIONAL MATERIAL

The observers were instructed to record any conversations they heard during the time of the mock attack and to casually interview as many persons as possible. As is indicated in the above accounts, very little of the conversation overheard was concerned with the mock air raid. Most persons tended to ignore the event in their verbal comments as well as in their bodily actions. The following is a brief analysis of the small proportion of the interview and conversational material which bore directly or indirectly on the test. This conversational material was generally of three types: (a) comments on the test itself; (b) comments on the effectiveness of the organized control and relief forces in meeting the problems posed by an actual bombing; (c) questions or comments regarding the person's own role and behavior in the case of an actual bombing. These three broad categories of verbal comment are discussed in greater detail below:

a. Comments on the raid itself: The comments dealing with the practice raid indicated that most persons were aware of the test in advance. When questioned about it, they usually gave a matter of fact account of the operation or expressed some disappointment or disgust that it was not as "realistic" as the prior announcements had indicated. The following are typical remarks:

> (Remark by man as slow-moving observation planes are flying over): Are <u>those</u> the things that are supposed to bomb us?
>
> (Interviewer asks woman: What's going on?) A mock air attack. There are supposedto be a lot of planes and blank firing of guns, but I don't see that much going on.

(Are we supposed to do something during the mock attack?) No, just get used to what the warning sirens sound like I suppose.

(Interviewer to man on street: What's going on?) Some mock air raid they're having.

(Interviewer to newspaper seller during first alarm: What's happening?) Them's the bomb sirens. They're trying them out. They've got sirens on top of some of the buildings. I don't remember which ones.

(Remark by one man to another): That policeman's whistle is louder than the sirens.

(Interviewer to young man dressed in work clothes who is watching demonstration from the bridge over the Chicago River: What's going on?) I really don't know--some kind of ceremony.

(Interviewer to elderly man: What's going on?) That's a practice air raid for the Russians. (Do you think they'll come and bomb cities in the U. S.?) No. They'll never come over here; they'd get blown up too; they're not so dumb.

(Interviewer to policeman: Are they going to block this street?) I don't know and I don't particularly care whether they are going to or not.

b. Comments on the possible effectiveness of the organized control forces in meeting the problems posed by an actual bombing: Since there was practically nothing in the way of organized control forces in evidence throughout most of the area covered by the observers, comments in this category were limited to the spectators who witnessed the demonstration at the river front. Although this area was not selected specifically as a point of observation, because the persons in the area could immediately see that the test was a demonstration, a number of remarks picked up in the area seemed to indicate that persons were generally skeptical of the ability of the organized control forces to meet the problems posed by an actual bombing. The following remarks were obtained:

(Policeman to man dressed in civilian clothes, both standing on bridge crossing river and watching demonstration): This would be a divided city if they dropped a pineapple (bomb) on each side of the river. (At this point, the fireboats and fire trucks gave their water spraying demonstration which was designed to show how they would "save the Loop." The water was shooting into the air to a height of about 6 or 8 stories. The policeman continued):

Is that all the higher it will go? That ain't worth a s___. What would happen if the Wrigley Building was on fire? (The Wrigley Building, standing next to the river, has 26 stories.) (Later) I'm damn glad I'm a policeman and not a fireman!

(Two middle-aged men standing on bridge and watching water-spraying demonstration. One turns to the other and says): That's the most stupid thing I ever saw. How in the hell do they expect to save the Loop that way? Anyway, if a bomb drops here, there probably won't be anything to save.

c. Comments on persons' own role or behavior in actual bombing: Comments and questions in this category generally indicated that many persons have an inadequate knowledge of their own role and behavior in the event of an actual bombing. One observer noted that persons continued to pass an air raid shelter sign, even during the wailing of the sirens, without apparently noticing it. Several conversations which were picked up also indicated that the persons were not adequately informed as to the appropriate action to be taken in an actual bombing:

(Two young Negroes, about 25 years of age, dressed in work clothes are standing on the State Street bridge, looking across the river at the smoke and demonstration of fire fighting equipment. One turns to the other and says): If anything does happen, right down there next to the river will probably be the safest place to be. It would be better to be out in the country someplace, though.

(Woman to newspaper seller on corner of State and Randolph Streets): Where are you supposed to go for shelter? In the subway? (Newspaper seller) The subway is right down there where the green light is, but that won't help much. Tribune Tower has a shelter. (Woman) Are all the people in the Loop supposed to fit into the Tribune shelter? (Newspaper seller) Well, no, that's just for their employees. You just gotta do the best you can.

SUMMARY OF FINDINGS

a. The foregoing material indicates quite clearly that the populace was generally apathetic toward the test. Aside from the persons who went to the Chicago River front for the express purpose of viewing the demonstration of firefighting equipment, etc., most persons tended to go about their usual business without paying any noticeable attention to the event. The only activities which could be attributed to the test itself were occasional glances

at the airplanes flying overhead and some conversation which pertained to the event. Even these, however, were nontypical. Most persons tended to ignore the event both in their verbal comment and their bodily behavior.

b. The operation itself was so mild and unrealistic that most persons experienced no sense of involvement or threat. Since the Chicago newspapers and other mass media of communication had carried stories about the event in the three preceding days, a large number of persons had already defined the event as a "test" and therefore a non-threatening situation. Even among the persons who had not previously been informed of the operation, however, there was nothing in the situation which could possibly be defined as threatening to bodily safety. Hence, it was either completely ignored or, if defined at all, was interpreted as "just another ceremony."

c. The cancellation of the only element that might have added a note of realism to the test--namely, the firing of blank ammunition by the anti-aircraft batteries--on the basis that "it was just too much of a chance to take on a possible panic," was probably unjustified in the light of the fact that so many persons were informed of the test in advance. A number of persons indicated disappointment that the anti-aircraft fire was not carried through. It is doubtful, under these circumstances, if there would have been any individual fear reactions, much less panic. Contrary to popular opinion, panic is an extremely rare phenomenon even under conditions of actual bombing. Prior to the World War II bombings in Great Britain, the British Civil Defense authorities were preparing for widespread panic and mass hysteria, based on the predictions of various specialists. During the actual bombings of Britain, however, these predictions failed to materialize. There was little or no overt panic even in the heaviest bombing raids.[1]

Irving L. Janis, after a careful review of the available observations on the reactions of the survivors of the atomic bombings of Hiroshima and Nagasaki, concludes that "the evidence available on overt behavior does not provide substantial support for claims that overt panic, disorganized activity, or anti-social behavior occurred on a mass scale during the two A-bomb disasters." He points out that "panic behavior in disaster situations rarely occurs unless (1) there is an obvious physical danger which is immediately present (e.g., a raging fire only a few feet away) and (2) there are no apparent routes of escapes."[2] This finding is generally supported by the NORC empirical studies of peacetime disasters.

In view of this and other scientific evidence, it would appear that such tests could be made quite "realistic" without incurring anything in the nature of collective panic reactions. This is particularly true when a large proportion of the population has already defined the situation in advance

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[1] R. M. Titmuss, Problems of Social Policy, (London: His Majesty's Stationery Office, 1950).

[2] Irving L. Janis, Air War and Emotional Stress, (New York: McGraw-Hill Book Company, 1951), pp. 43 and 193.

as a "test," as was true in the present case. The use of anti-aircraft fire and simulated bomb explosions may produce a few isolated instances of fear reactions among individuals who are not previously informed about them. Even these are likely to be of short duration, however, because of the stabilizing influence of the other persons who have previous knowledge of the test.

d. One of the stated purposes of this test was "to study the problems that might arise in an actual emergency." Although the test may have provided valuable information with reference to the problems of handling and coordinating the organized Civil Defense forces, it largely ignored the problems that will arise with regard to human behavior in disaster situations. Since the effectiveness of the organized defense and relief forces in any actual disaster situation will be dependent to a large extent on the behavior of the general populace, no "realistic" test of these forces can ignore this aspect of disaster preparedness. Some of the human problems that may arise--e.g., the speed and efficiency with which persons seek public shelters--can be closely approximated in such tests. Other human problems--e.g., fright reactions, crowd behavior, informal leadership and relief work--cannot be closely simulated. Some approximation to them can be obtained, however, by setting up hypothetical problems in human behavior based upon known reactions of persons in actual previous disasters. The use of such problems would provide a test of the efficiency of the organized defense and relief forces in a more realistic context.

e. A further stated purpose of the test was "to show the public what kind of reception the city has planned for any aerial raiders" and "to demonstrate the city's ability to combat fires after an air raid." If the remarks that were obtained by the observers are taken as typical, it would appear that this purpose was not fulfilled. Rather than reassuring persons, the demonstration appears to have heightened anxiety with reference to the city's ability to defend itself. The general tenor of the remarks by persons who watched the demonstration was one of skepticism regarding the effectiveness of the organized forces in meeting the problems posed by an actual bombing. The demonstration, therefore, appears to have reinforced previous anxieties or built up new ones. It is also quite clear that a number of persons were made aware of inadequacies in the Civil Defense facilities and equipment of which they had not previously been aware--e.g., the inability to hear warning sirens clearly, the absence of convenient air raid shelters, etc. Civil Defense officials might well consider taking this "boomerang effect" into account in planning these operations. Unless the test is given in such a way as to reassure persons of the city's ability to meet the problems posed by an actual disaster, it may be inadvisable to conduct them. The present study does not provide sufficient data on which to make a decision regarding this aspect of planning air raid tests, but it does suggest that it is a factor which should be taken into account.

f. The observations collected in the study also suggest that there is a fairly widespread ignorance of the course of action to be taken on the part of the unorganized population in the event of an actual bombing attack. A number of persons apparently did not know the meaning of the various siren signals--e.g., which signals indicated "warning," "planes overhead," and "all clear." It is also clear that a large proportion of the population does not know where to go for shelter in the event of an actual bombing. For future

operations of this type, it would appear advisable to conduct a prior educational program to acquaint the populace with their role and behavior in regard to these and other aspects of the Civil Defense Program.

CONCLUSIONS

The purpose of this study was to determine whether or not such tests would be of value in predicting human reactions under conditions of an actual bombing. The evidence obtained in this study suggests that they are of little or no value for this purpose. It was quite obvious in the present case that persons did not define the situation in terms of danger; hence, there is no basis for predicting how they would have acted in a situation which they did define as dangerous. Moreover, it is unlikely that any test of the present type will be sufficiently "realistic" to parallel the type of experience that persons undergo in actual crisis or disaster situations. A study of such tests, therefore, will offer no basis for extrapolating the findings to an actual bombing raid.

A study of such mock bombing tests may be of value in determining the state of knowledge and the affective orientation of the population with reference to disaster preparedness, but this is a separate problem in itself. It offers no substitute for the study of situations in which persons are actually exposed to threatening and stressful stimuli.

Appendix B-9

Report on a Carbon Monoxide Asphyxiation Incident,

Chicago, Illinois, December 8, 1952

REPORT ON A CARBON MONOXIDE ASPHYXIATION INCIDENT, ABC MANUFACTURING COMPANY,* CHICAGO, ILLINOIS, DECEMBER 8, 1952

INTRODUCTION

The following is a report on an investigation of a carbon monoxide asphyxiation incident occurring in an industrial plant in Chicago, Illinois. The investigation was conducted by the Disaster Research Team in order to study the social psychological effects of the event on the affected workers. Previous investigations by the Team had not included a disaster involving a toxic agent, particularly an agent which was unknown and undetected. Hence, this event was selected as one which might throw light on the nature of behavior in a crisis involving an unknown or unfamiliar precipitating agent.

The material reported here is based primarily upon 12 formal tape-recorded interviews and 5 informal interviews with persons who were at work in the plant at the time the carbon monoxide was released. The interviews were conducted during the two days following the occurrence of the incident. The interview data are supplemented by hospital case records and a preliminary report on an investigation of the event by the Chicago Board of Health.

The twelve respondents who were interviewed were selected in order to obtain a full coverage of the types of involvement in the situation. Since the concentration of the carbon monoxide gas in the various parts of the plant was unknown, it was decided to select persons who were spatially located in all sections of the plant. Diagram 1 shows the layout of the plant and the location of the selected respondents at the time of the incident.

DESCRIPTION OF PLANT

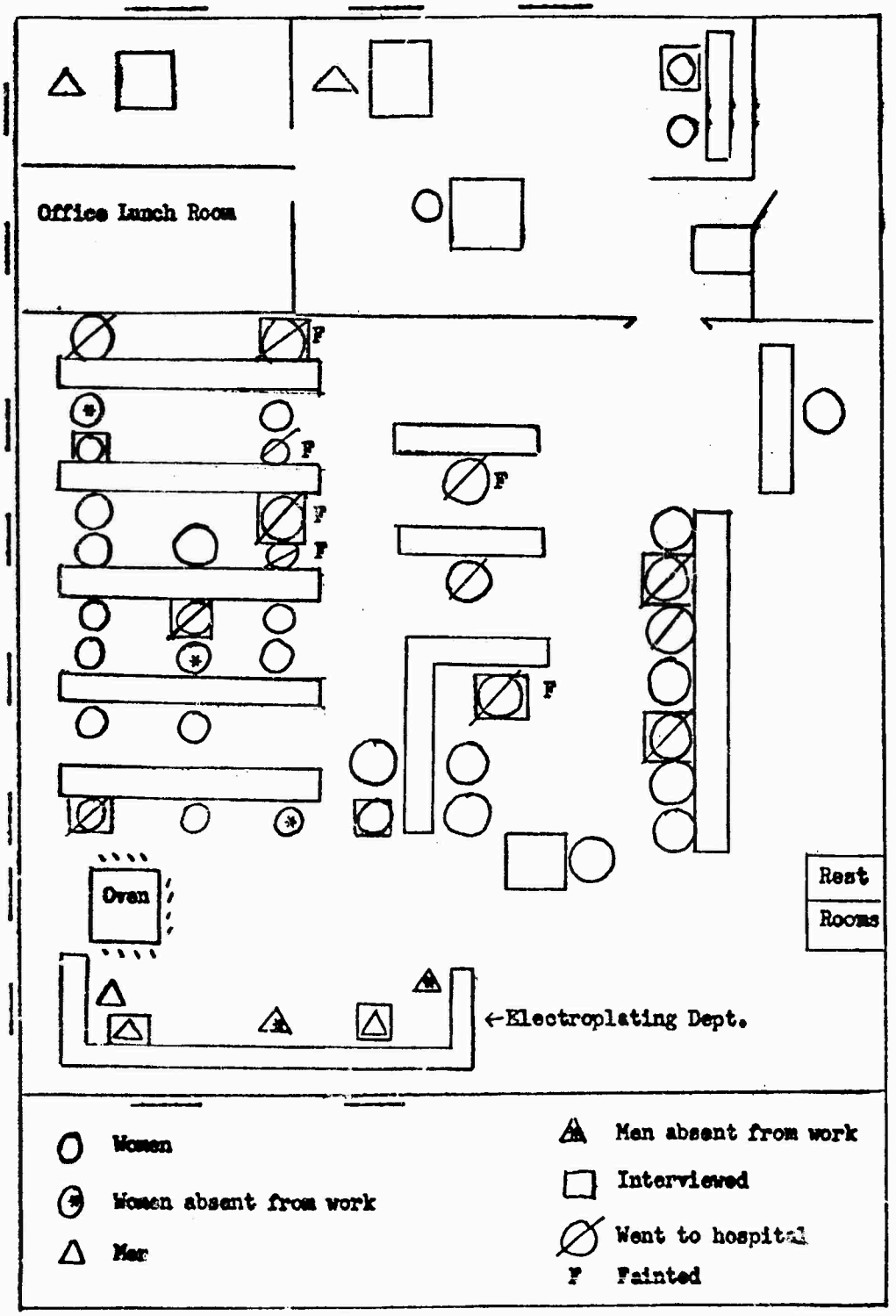
The ABC Manufacturing Company is located on the fifth floor of a seven-story building in the wholesale and industrial area near Chicago's Loop. The company specializes in the manufacture of wire collar stays and tie racks and employs a total of 48 workers.

As Diagram 1 shows, the plant layout consists of a set of offices in the front portion of the building and a large room in back in which the manufacturing processes take place. The company president, plant manager, and 3 white stenographers and clerks are located in the front offices. In the main work room, a total of 43 workers are employed. This total consists of a Negro woman foreman and 37 Negro women who work at various tasks in the manufacture of the collar stays and tie racks. In the extreme rear portion of the workroom are 5 male workers (4 whites and 1 Negro) who are engaged in electroplating operations and machine setup and maintenance.

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* In order to preserve anonymity, a pseudonym has been used to identify the plant.

Layout of Plant and Location of Workers



The manufacturing processes which take place in the workroom include metal annealing, punching and drilling of the components, assembly of collar stays and tie racks, electroplating, lacquering, and packing.

THE COURSE OF EVENTS

Sometime during the morning of December 8, 1952, carbon monoxide gas began leaking from a faulty flue in an annealing oven located near the rear of the workroom. However, this fact was established by the Chicago Board of Health in a later investigation and was unknown to the workers at the time. (The exact cause of the incident, in fact, was not known by the workers or, presumably, by the management during the two day period in which the NORC interviews were conducted.)*

At approximately 9:30 A. M., one of the Negro woman workers complained to the foreman that she was ill. However, she continued at work until 2:30 P. M. when she was permitted to go home. By mid-morning, many of the other workers apparently experienced headaches and other symptoms, but did not report them.

By 3:45 P. M., several other women workers reported to the foreman that they were suffering headaches, nausea, vomiting, and dizziness. At about this time, one Negro woman worker fainted in the plant and was carried outside to be revived. At approximately 4:00 P. M., the plant manager released the entire staff. (Usual working hours were from 8:00 A. M. to 4:30 P. M.)

As they left the building and met the fresh air, 5 Negro women collapsed on the sidewalk outside the building. Another became unconscious while being driven home from work. A Fire Department respirator squad was called and in a few minutes they resuscitated the victims. They also administered oxygen to a number of the other women who felt faint. A total of 18 women (all Negro) are known to have gone to Cook County Hospital for emergency treatment; some were sent directly from the factory by Fire Department ambulance, others went directly of their own accord by car or cab; a few went to the hospital after arriving home. Of the 18, thirteen were treated briefly at the hospital Monday evening (the day of the incident); 3 stayed until Tuesday afternoon; 2 others stayed until Wednesday or Thursday. (Work was resumed as usual the following day, with approximately 8 workers absent from their jobs.)

An investigation by the Chicago Board of Health indicated that the cause of the poisoning was a faulty flue connection in an annealing oven. Samples of the air were taken by Board of Health officials at 7:00 P. M. the same evening, but by that time all the gas had apparently escaped through

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* The Board of Health investigators presumably suspected the annealing oven as one source of the CO gas and ordered the management to discontinue use of the oven until the exact cause could be established. However, this is an inference drawn from the fact that work was resumed the following morning with no further adverse effect to the workers. The management representatives maintained that they still did not know the exact cause of the event during the two-day period following the incident and made no mention of the action taken by the Board of Health.

windows which had been opened by the Fire Department rescue squad. However, blood tests of three cases admitted to the hospital showed carbon monoxide concentrations of 20%, 30%, and 40% respectively.

At least 30 women (28 Negro, 2 white) and 3 men (1 Negro 2 white) are known to have been physically affected to some degree by the CO; although we have no direct evidence on the other workers, it is probable that all those present experienced some of the symptoms.

SYMPTOMS REPORTED BY RESPONDENTS

Summary: The following symptoms were reported by the respondents who were interviewed: severe throbbing frontal, temporal and/or occipital headaches; nausea, vomiting or gagging; bloated stomach; dizziness, and, in several cases, unconsciousness; feeling of a need for air; feeling of physical weakness; and scattered cases of chest complaints, sleeplessness, coated tongue, sore throat, and chill. Following is a more detailed account of these symptoms:

1. Headaches

Everyone in the plant who was interviewed or who went to the hospital reported having a headache. Many other workers not interviewed were reported to have had the same. The headaches varied in time of occurrence, type, and intensity. For those most seriously affected, the headaches typically began in the morning or early afternoon, and at first resembled an ordinary headache. As the day wore on, however, the headaches increased in intensity and finally the throbbing in the frontal and/or temporal areas, as well as pains in the occipital region, were so severe as to be almost unbearable. In spite of aspirins and Anacin pills taken, the headaches continued into the night, preventing some from sleeping until after 3 A. M. For some, milder headaches persisted, for one, two, even three days. For most persons, however, the headaches had largely disappeared by morning, but were replaced in some by feelings of "dizziness" and "lightheadedness" for one or two days.

One of the women who went to the hospital but did not stay there overnight reports:

> I just had this terrible headache, just my head. That's the worst thing I had. [At first] my temples were starting to hurt, in both temples and in the back. My head felt like it was going to burst. I never had a headache like that before. ...Later on when I was in bed that night, my headache was still thumping. I was trying to close my eye balls, [and] it seemed like my eye balls was set wrong. If I looked this way, that was hurting, and if I looked or tried to set my eyes so my head would stop hurting, so I could sleep. But I just couldn't get in a position so that I could fall asleep. My head hurt so bad, you know. In fact, the veins had swollen so that you could actually see them, see them throbbing. ...I'm still a little dizzy today [two days later]. I don't have the headaches, not

at all. And I'm not shaky. But if I make a quick turn, I get dizzy, I feel like I'm going to keel over.

One respondent reported that the following morning her eyes "felt tight--like after you cry," but that the headache itself was gone. Another reported that the headache made things "go darker" every once in a while.

For those women less affected, there were variations in intensity and duration of the headaches, but they were described similarly as throbbing in the forehead and/or in the temples, and pains in the back of the head, followed by dizziness.

Some respondents reported only the headache symptom--e.g., a white man working at the back, and a white girl at the office switchboard. These respondents were inclined to attribute the headaches to causes other than the one affecting the Negro women workers (e.g., chronic stomach ailment, the excitement of seeing the women fainting, being up too late the night before, etc.).

2. Stomach Disorder

Usually several hours after the onset of the headaches, about half of the women felt nauseated. After a short time, this nausea led to repeated vomiting for some of the respondents. Several women had vomiting attacks in the washroom in the shop, others immediately upon reaching the fresh air outside the building; still others in the hospital or on the way home, or at home later in the evening. In some cases the vomiting was quite severe, persisting until all food had been regurgitated, and then continuing in the form of gagging and belching of gas. Some reported the urge to vomit but could only gag. One woman reported that her stomach was bloated and distended five or six inches:

> About noon I became nauseated, and all I could do was to keep from vomiting right there [in the shop]. I went to the dressing room, and I vomited ten minutes before I stopped. ... [Later] I vomited at the hospital too, but I vomited everything and had nothin' more to vomit. Just kept gagging then. ... I was all blowed up; I was swoll. I just belched air. Every time I belched it was a relief. I belched and vomit at the same time, but after I couldn't vomit, I just belched. My stomach stuck out--this much!--so my clothes wouldn't fit.

Probably more typical is the report by another woman who did not go to the hospital:

> And about 11:30 I got feeling kinda' funny in my stomach, kinda' sick, like I was gonna' vomit or something. Then at noon time we ate, and I didn't vomit 'till I got home. But I was feeling like it all the time. ... I [hardly] made it in the house before I started vomiting. ... [The next morning] I was just weak from all that vomiting.

These women reported lack of appetite until the following morning or noon, at which time they were very hungry. Soon after eating, normal digestive functioning resumed. Of 17 persons on whom we have data on this point, from interviews or hospital reports, 4 women (2 Negro and 2 white) and 1 man, are known to have had no stomach trouble, although they did have the typical headache syndrome. Several others not interviewed were reported by respondents to have similar symptoms.

3. Unconsciousness and Dizziness

At least six--possibly seven--women who worked in the shop were rendered unconscious. Typically, this occurred when the women left the building and inhaled the fresh air. On meeting the fresh air, they reported that they suddenly felt dizzy and then faint. However, one woman fainted while she was still in the building (near an open window), another while she was riding home in her own car.

Generally, there was practically no warning of the onset of the unconsciousness, but the woman who fainted while still in the shop, reports her desperate efforts to keep awake:

> I didn't have the slightest notion of going to sleep because I wasn't sleepy. Yet I was going to sleep, and I kept trying to fight to keep awake. But I just went to sleep! I just couldn't keep awake, no matter how long or how fast I'd try to talk. It's the queerest feeling I ever had; it felt as if I was doped or something, like I was chloroformed.

The feelings aroused by this inability to remain conscious when she wanted to, will be discussed under "Affective Reactions" below.

4. Feeling a Need for Air

Although practically everyone denied smelling any unusual gases or fumes which might interfere with breathing, three or four respondents reported that they felt a need for fresh air. However, this feeling seemed to vary in the degree of vagueness with which it was perceived at the time. One woman, for example, did not actually mention any trouble with breathing, but said merely, "I felt much better after I got in the air." Another, the one who fainted while still in the shop, was more definitely aware of a need for air; she said: "...and someone raised the window and that's the last I remember, I was hanging out the window. It seemed like the air was trying to revive me." Finally, the woman who was most aware of the need for air, phrased it in this manner: "I remember when it first started, I couldn't get my breath. Something seem like it was choking me." It should be remembered, however, that this feeling was mentioned by only a few respondents.

5. Physical Weakness

Two kinds of physical weakness were mentioned by respondents:

(a) Weakness in the legs or knees, which usually was felt when the respondent stepped into the fresh air outside, although it was also noticed earlier the same day by some (one, for example, reported feeling ashamed of "staggering" to the washroom, for fear of being seen by the men at the back who would "kid" her about it), and also by some the following day. The floorlady, who according to all accounts behaved calmly and responsibly through the whole episode, is reported by the white male respondent as saying, while at her desk, that she felt so weak in the legs that she thought if she got up she would just "keel over." (Evidently she did not.)

(b) A generalized feeling of weakness or exhaustion, phrased, for example, by one respondent as feeling "just as if I was recovering from a long illness."

6. Miscellaneous Symptoms

There were a number of other symptoms that were reported only occasionally—in some cases by only one respondent.

(a) Chest Ailment

Three women interviewed indicated they had trouble in the region of the chest, although this trouble was not exactly the same in all cases. One, for example, said:

> It hurt, across up here, cross my chest. (How did it feel?) Just stuffy, stuffy like I had indigestion; it hurt across my chest. (Did you feel aches, or pains, or burns there, or just what?) Yes, aches and sharp pains, but no burns; no, no burns, it was just aching.

(b) Sleeplessness

Several of the women interviewed mentioned that they had difficulty in normal sleeping. In one case it was the severe headache that was adduced as preventing sleep. In others it was a more generalized disturbance: "I didn't sleep well the first night; I would go to sleep and then wake up, sleep and wake up, sleep and wake up, all night long."

(c) Coated Tongue

One respondent said, "I had a nasty taste in my mouth. Even yet my tongue seems coated, and I just can't seem to get that taste out of my mouth."

(d) Sore Throat

One patient in the hospital is reported as having a "sore dry throat" later (presumably the next day, or after).

(e) Chill

One respondent reported feeling "weak, and having a chilly feeling all over" at the time she left the building.

7. Generalized Feelings

Many respondents, either in conjunction with reports of specific complaints, or without any specification, said they "just felt bad all over."

PROTECTIVE ACTIONS TAKEN

The actual* protective actions taken included the following:

1. Medication

In an attempt to relieve the headache, many respondents took aspirin or Anacin, in some cases also Alka-Seltzer, of their own accord. However, one respondent said she didn't take anything because she "didn't know what she would be taking it for." At the hospital, patients reported that doctors gave them "some white pills" which the patients said were "not aspirins" but could not otherwise identify. (Hospital reports on these patients specify under "treatment": "aspirin; bed rest.")

2. Bed Rest

Patients lay down in the rest room at the plant, of their own accord, in an attempt to relieve themselves of headache, dizziness, etc. Later, doctors at the hospital prescribed bed rest for those who went to the hospital. Those who went home lay down or immediately went to bed and stayed there all night.

3. Fresh Air or Oxygen

Without knowing that gas was present in the workroom, the victims tried to get to the fresh air. Several noticed it was "stuffy" and asked that the cardboard be taken down from in front of the window, and to have other windows opened. One woman who fainted said she was "hanging out the window" when she collapsed. Later she was walked around outside by her 18-year-old son (also employed at the plant, and one of the respondents), and slapped on the face in efforts to revive her. The doctor at the hospital, after an examination,

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* When asked what they would have done, if they had thought at the time that the cause of the sickness was gas, practically every respondent indicated that their first reaction would be to tell someone else about it. For example, one respondent said:

> I think I would have told somebody--I'd just let everybody know I smelled gas. I don't know if I'd know what to do, but I would have told them so they would know what to do.

asked some to walk around outside for a half an hour (for fresh air) and then return and tell him how they felt.

The Fire Department, upon arrival, administered oxygen to the five victims who fainted and several others who were less severely affected.

4. Hospitalization

As indicated, 18 went to the Cook County Hospital, some on their own accord at various times during the evening, and others were taken there by ambulance. At the hospital, all received examination by the doctor. Five were kept overnight or longer; 13 were discharged within a few hours.

DEFINITION OF THE SITUATION

From a social psychological point of view, one of the most significant aspects of this incident is the way the affected individuals attempted to assess the possible cause of their illnesses, and to define the situation generally. Because carbon monoxide is odorless and colorless and is not directly perceivable by any of the sense organs, it is not surprising that it was not correctly identified as cause by any of those affected. The kinds of things they defined as cause in this ambiguous situation, and the way in which they made these definitions, may throw some light on what we might expect in other similar situations.

Most of the respondents interviewed felt a headache or were a little dizzy in the morning or early afternoon, but at first did not think anything of it. They dismissed it as "just another headache," not thinking anything else was wrong. As the headaches became worse, however, the respondents, individually, began to take the matter more seriously, and to question themselves as to its cause. Still thinking only themselves ill, they thought the cause was something peculiar to their own experience: e.g., being out late the night before, having greasy dirt on eyeglasses, or failing to eat enough breakfast, etc. Depending on the severity of their symptoms and their causal interpretation of them, they took aspirins and/or went to the washroom to lie down.

It was only when they heard that others were complaining of similar headaches, or saw them taking aspirins or lying down too, that they realized something general must be wrong, something affecting the whole group:

> I taken with this headache, and, ah, I didn't know what it was, you know, so I didn't say anything about it. So I goes back in the washroom and I see's two or three other girls sitting in the washroom, and so I says, "What, you all sick?!" They said, "Sick! I got a headache!" I said, "I got one too, but I didn't say anything about it." So when I came over there, I says to the floorlady, I says, "What's happening, everybody just seem like they got the same thing," with the headaches. "One girl," I said, "is back there vomiting--what's wrong?" She said, "I don't know."

This realization that something generally was wrong came about at different times for different people, depending first on whether or not they had an opportunity for interaction with others, and then, secondly, on whether in this interaction the others actually exchanged information of this sort. For example, one respondent reported having had lunch with two or three friends, but although she and the others already felt the headache by that time, they did not discuss it; so she was still unaware at that time of anything generally wrong. (It was only two days later that it was known that they also had had the headaches in the morning of that day--Monday.)

By mid-afternoon, however, the majority of the women in the shop knew that something was amiss, since most of them by this time had participated in some type of social interaction in which this information was exchanged. There was one woman worker, however, who was almost deaf and mute and who consequently had little opportunity for social interaction; she actually did not know that others were similarly affected until the next morning when she returned to work--although she had had a bad headache, had worked in a fairly central location, and had left work approximately at the same time as the others.

By late afternoon most of the workers had arrived at the conclusion that there was some common causal factor which was affecting all of the workers and making them similarly ill. Most of them, however, even when probed by interviewers to recall what guess they then had as to what this causal factor might be, simply indicated perplexity and an incapacity to single out any particular factor. Typical responses were:

> Must be something in here, something in the building affecting everybody, but I don't know what. That's all I could say.
>
> I just didn't know what it was--and I still don't.
>
> It was hurt from some cause, but I don't know what it was.
>
> I don't know, it's something I'd like to know, just something peculiar.
>
> I don't know, I don't have no I-dee-a.

However, some proceeded to search for what this cause might be. Three of the workers mentioned smelling some unusual odor that afternoon. One of them said: "... /It/ smelled like alcohol--like the smell around a car when you got alcohol in it." A second worker is reported to have smelled "something like acic" (probably meant "acid"), but this factor apparently was discounted later. Finally, the third respondent said that she had smelled something like "stale fish" early in the afternoon, and later had told a friend who "just laughed, that's all." They then thought that someone had simply left some garbage around, and did not make any further attempt to connect the smell with the illness.

The reports of these smells circulated fairly widely that afternoon, but all of the other respondents vigorously denied smelling anything unusual. For example, the "alcohol" interpretation was widely reported among the workers,

usually with derision; white male workers implied that that particular female had so much oral contact with alcohol that she would smell it anywhere.

Although the types of objects selected as possible causal agents for this particular disaster are of interest, more important are the processes by which the respondents arrived at their own definition of the situation, or made causal assessments acceptable to themselves.

Some of the respondents, as indicated, made only slight efforts to find a satisfactory explanation, then merely gave up. Others seemed to have partially accepted, with varying degrees of credulousness, one or more of the "explanations" being circulated during the afternoon. However, there are a few cases--definitely a minority--where the search for possible causes was carried on in an extremely rational way, at least in relation to the knowledge possessed. These respondents considered, for a time, one factor after another which appeared unusual in the situation and which might provide a possible explanation, and then eliminated each of these in turn on the basis of contradiction with the perceived facts of the situation. This process of trying to find a causal explanation went on, almost desperately at times, right up to the time of the interview several days later, and even at that time the cause was still not known by any of the respondents. The desperation felt by some in not finding a good explanation was expressed by one: "I mean I just got almost hysterical because I couldn't put my finger on it!"

To illustrate this search for a meaningful explanation of the event, we may quote directly from an interview with a woman who manifested all of the main symptoms:

> At 10:30 I got a headache, a temple headache. I thought it was just a headache. I didn't pay any attention to it because I just thought I was hungry ... but the nearer noon it became, the worse the headache got ... but after I ate, it continued to ache. I had taken two aspirins and I laid down for 30 minutes and I took a third and then a fourth aspirin.
>
> [Just before lunch] my son--he works in the back of the shop--he said he got dizzy too when he went upstairs. I thought he needed lunch too. He ate breakfast, and I didn't, but he hadn't eaten lunch [yet]. [Then after lunch] I thought it was his eyes, because he recently stopped wearing his glasses, and before he had had a muscle strain, and [before] he got glasses, he suffered from headaches.
>
> The girls ... they kept teasing me about having a bad week-end--but it wasn't that [because I didn't go out].
>
> ...Usually I work in the rear from 12:30 to 2:30 over some vats and there is something there which burns my eyes--I don't know what it is, but all the time I'm back there, ah, it doesn't nauseate me, but it burns my eyes and burns my nose. But I didn't work there Monday because the boss didn't

get there 'till about 3 o'clock that day. But if I had been there Monday, I would have thought it was that, but I wasn't. I didn't know what it was, it was the most peculiar...

I first thought I was hungry ... but after I would eat ... it got worse. It got worser as the afternoon went on. So I didn't know what to think. (Long pause) The very first time I vomit I thought there was a possibility of me being pregnant, but after everybody started vomiting, I knew everybody wasn't pregnant!

That aspirin ... In fact that's another thing that frightened me ... I thought I'd taken too much, I crossed over from aspirins to Anacins. You know they say you shouldn't take too many, and I thought I had ... taken too many. Then another few minutes would [pass] and I wouldn't know what to think next.

Oh, the girls were coming in the dressing room and saying something about gas, but the thought of gas didn't cross my mind because I didn't smell any. (Not at all?) Oh, I thought maybe it could have been that, but I didn't smell anything, anything at all--I mean nothing unusual.

The doctors [at the hospital] didn't tell me even what to think. I didn't work yesterday [day after incident] but some of the girls said [then] it may be the water ... But the girls in the front office drink the same water and nothing was wrong with them.

The girls also say [the next day] it may have been the oven we were heating our food in. That's what some of the investigators say. [But] I still don't know what it was. ... This oven isn't a gas range; it's an oven they try the metal out in. The girls have the habit of heating their lunches [which they bring from home] in. So they think maybe they shouldn't have used it. They say that usually when you keep food in there and heat it, they say bacteria forms in it, or something. But my head had hurt even before I ate, because I thought that after I ate it would stop [and it didn't].

(Did you think it has anything to do with any of the work you were doing?) Not with my work. Because I only had this metal I'm working on [and] ... I don't see nothing wrong with that.

I just didn't know what it was. I still don't. It's just peculiar, strange, awful strange. It's the air, I guess, that's the only thing I could figure out, because we were all sick but we didn't all eat the same thing, we all bring

> our own lunch. ...but we all breathe the same air, that's about the only thing I can think. (What do you think it might be about the air?) If it isn't the fumes, I don't know what it is. But I didn't smell anything. (Did the air seem unusual in any way?) ... that day it got stuffy ... they raised the windows because it was warm outside. ... other than that I don't know. I still don't.

We note in this illustration that in the absence of a satisfactory causal explanation of her illness and that of the others around her, a single respondent entertains successively the possibility of 12 different factors which might explain it, and subsequently dismisses each of them because they do not meet the test of consistency with her experience and/or her previous knowledge. Five or six of these possible causes (--just a headache, something in the vats, pregnancy, too many aspirins, hunger, and possibly "a bad week-end") raced through her mind before she knew the other women were similarly affected, and each of them was consistent with her current interpretation that she alone was ill. Then each in turn was eliminated as a plausible interpretation because of some logical inconsistency between it and observed facts of the situation. On discovering that her son was also ill, she extended her list of possible causes to include a reasonable explanation of his headache ("I thought it was his eyes."). Finally, after she found that others were suffering in the same way, she realized that the cause had to be something in common by all those affected. Then at least four possible causes were suggested to her (gas, the water, the oven or the food, and the work conditions) but she was still unable to accept any one of them because in her mind none of them met the requirements of her experience. Even the prestige of the authority of "some of the investigators" was unable to refute this direct experience successfully. Her search for a cause was thus a persistent one, but except for the "stuffiness of the air"--which she can scarcely find herself believing--she was unable to find a satisfactory answer. At the end of her search, she was still baffled.

This case was chosen for purposes of illustration partly because the woman spontaneously listed more possible causes than any other respondent interviewed. She provides a more intensive example of processes a few of the other respondents also went through, though with less persistence and entertaining far fewer possibilities. To indicate something of the range of possible causes which were considered, here are excerpts from 4 different interviews:

> I thought it was some grease or something on my glasses ... washed them off ... put them back on, and I still couldn't see ... wasn't blind, just dizzy. I didn't know what happened ... saw in the paper it was gas, but I didn't notice it ... it didn't even seem stuffy to me.

> As soon as I saw her [respondent's mother] down, I figured it was gas ... I read that it puts you to sleep ... she went to sleep ... that's what I thought it was, but I don't know.

> ... thought it was an ordinary headache ... but then it seem

> like everybody had the same thing, and I said, "I don't know what could be wrong. Maybe it's too hot in here, but it's not that hot."
>
> I was just feeling dizzy ... no fumes, no smell ... didn't know what was happening. ... tell you what I put it to: I was out kinda late last night and maybe my head was hurting from that. But ... I don't know what it was.

During the afternoon of the incident, the management gave no official definition, or notification, to the workers that anything was wrong, except that shortly before four o'clock the floor supervisor announced simply that they had all better go home because several weren't feeling too well. This announcement obviously did not define the cause of the trouble, which in fact the management did not know, but defined merely what the workers' subsequent activity should be.

This ambiguous situation left the field wide open for all kinds of stories and rumors, which evidently developed starting late that afternoon and through the next few days. Many reported that "others" or "someone" had smelled gas, but none of these said they smelled any gas themselves. The white set-up man (machinist) reported that several of the women said they smelled gas the following morning, but that he himself did not smell anything. He dismissed their perceptions as an olfactory hallucination.

Some respondents noted—usually with disbelief—that "the newspapers said it was gas." One respondent derisively reported a newspaper as attributing it to "tear-gas." She implied this was too absurd even to comment on. Many noted contradictory and inaccurate newspaper reports. Few if any respondents seemed to take the newspaper reports seriously.

It is interesting that a newspaper item of a hospital report citing high CO content in the blood samples of hospitalized victims, was noted by at least one respondent, and was immediately dismissed as just another implausible explanation. The reasoning was usually that "we didn't smell anything" indicating widespread ignorance of the nature of CO and hence incapacity to conceive of it as a possible agent, even when indications are clearly presented.

On the following day, at least two distinct rumors emerged which were, however, given little credibility. One of these was based on the speculation that it was food poisoning. According to this rumor, it resulted from eating home-made lunches which were heated in the company's annealing oven. The rumor was even further elaborated: "They say that usually when you keep food in there and heat it, they say bacteria forms in it or something." The second rumor, which was less widely believed, was that the drinking water was in some way poisoned. None of these stories, however, was apparently very firmly believed at any time by any of the people interviewed, in spite of the fact that at the time of the interview the real cause was not yet known by them.

AFFECTIVE REACTIONS

A. Initial Reactions

The types of emotional reactions which were reported as occurring at the time of or immediately after the event, ranged from near apathy or very mild concern, to extreme fright. The most fearful or anxious reactions were stimulated by one or a combination of the following factors:

1. Inability to define the cause of the disturbance. As already indicated, this proved extremely disturbing to most respondents, and its emotional effect was typified by the remark of one respondent: "I was almost hysterical, because I couldn't put my finger on what it was!" Another respondent said: "I can't tell you what the cause was—it had me scared to death!"

2. Involuntary loss of self-control. The physical effects produced by the CO (e.g., dizziness, drowsiness, etc.) in themselves tend to render the person mentally confused and helpless. However, it was the consciousness of this involuntary loss of control over their behavior which proved particularly disturbing psychologically. An example is provided in the remark: "I was going to sleep, and I didn't want to go to sleep, that's what really scared me!"

3. The sight of others falling suddenly unconscious. The sight of other persons suddenly fainting, with the possibility of a similar fate for oneself, added an additional frightening aspect to the situation for many respondents:

> I got excited when I saw the others passing out outside—that's what really frightened me!

Others who showed less intense emotional reactions indicated that the most disturbing element was the increasing severity of the symptoms from which they were suffering and their inability to alleviate them with any of the known remedies.

B. Later Psychological Reactions

1. Generalized Anxiety

Generally, the respondents remained somewhat anxious and perplexed about the event during the following days, though not enough to keep them away from work. For the most part, they seem to have tried to avoid thinking about it. However, as one of them reported: "Every once in a while one of us pops up and says, 'Say, wonder what that was the other day?'" The anxiety was also expressed in the sensitivity some of them developed toward new stimuli—real or imagined. For example, the following morning (though the event had not been defined as CO poisoning) several seemed to be on the

lookout for gas, and reported smelling some unusual odors. (A white male at the back of the factory denied there were any such odors, and ridiculed their perceptions.)

Despite a lingering vague anxiety, all of the workers returned to work as soon as their symptoms, or at least their more severe symptoms, subsided, and then tried to forget about it. The interviewers questioned practically all respondents as to whether they thought this type of event might occur again, hoping to get at feelings of the fear of its repetition, and the almost unanimous and neutral response was: "I don't know, but I hope not." It appears evident, therefore, that the motivation to return to work was sufficient to overcome the possible anxieties that the workers felt.

2. Aggressions and Resentments

The very vagueness of this crisis gave ample opportunity for the emergence of resentments and aggressions within the work situation. Yet there was very little, if any, direct expression of such a nature, a fact possibly due to the lack of any sharp conflicts or dissatisfactions within the company. There was no evidence that any workers assessed the blame for the event against other workers, their immediate (Negro woman) supervisor, nor against the management. All indications pointed to unusually cordial management-worker relationships. Aside from the expressions in the interview concerning these relationships, the long length of time that many of the women had worked at the factory also suggests rather high satisfaction with the job, at least relative to other job opportunities in Chicago. (Many of the women had worked at the company for 15 years, and the majority had service ranging between 5-10 years.)

However, one respondent who was somewhat more severely affected than the others, expressed resentment against her fellow workers who continued to talk and joke about the incident. The continual talk during the two days following the incident appears to have been an additional source of psychological disturbance for her:

> Even now I feel ... a little nervous, just kinda nervous. The talk ... mostly the talk, you know ... everybody ... I imagine if it just quiet down and would say anything about it, I'd be all right. But you know, talk here and talk there, and you get frightened here and you get upset. (What do you mean 'talk'?) The girls talking, you know, of Monday. They just keep /it up/. ... They mostly mention--they joke about it. But I think I was the one that had the worst, you know, I don't think they really understand how I felt. That's what I think, because I don't think they would joke if they did. ... they keep making a joke out of it, but I know it wasn't a joke. No, it wasn't a joke. I mean

I don't think they would if they had any sense! They'd be more frightened; they'd take it more seriously. When I want to hush, you know, and don't want to talk of it any more, then they start talking about it all over again.

SOCIAL FACTORS

A. Social Interaction

We have discussed above (under "Definition of Situation") the effect of social interaction upon the way respondents perceived the event. It is clear that interaction facilitated, if not in fact permitted, the definition of the situation to emerge that something generally was wrong, a definition which, in turn, permitted a search for a cause of this common disturbance in the daily routine.

The effects of social interaction on the physical symptoms, and on the emotional reactions, however, are not at all clear. The facts are these: Some of the respondents who were most severely affected had little communicative contact with others, and furthermore, most of those severely affected had had symptoms before learning of the plight of others. Also, there is no evidence indicating that symptoms became more severe upon the respondent's learning of the generality of the illness. The hypothesis, therefore, indicating that suggestibility, operating through social interaction, is positively related to physiological symptoms, or even to complaints of them, is not confirmed by the available data.

With respect to the effects of social interaction on emotional reactions, it appears from our data that the emotional disturbance and fear which resulted from the inability to assess a satisfactory cause to the illness, as pointed out previously, may have been intensified when the respondents learned through interaction with others how general the symptoms were. The data on this point are admittedly sparse, but they at least suggest the hypothesis regarding a positive relationship between social interaction and intensity of emotional reactions.

Another fact that emerged about interaction was that people in the plant did not start communicating generally about their symptoms until they began to hear from others about the extensiveness of the illness. Thus the interaction was a cumulative process.

B. Social Roles

The data obtained in the interviews tend to support the hypothesis that persons who have a strong feeling of responsibility for others tend to maintain better self-control and perform more adjustively under comparable disaster conditions, than persons who do not have such feelings of responsibility. The actual data which support this hypothesis regarding social roles are as follows:

(1) The Negro woman supervisor appears to have continued her supervisory role in getting the other women out of the building, in helping especially those who fainted to recover, and in staying around until all who were distressed had been relieved. It was only after she had performed all these tasks that she herself took oxygen from the resuscitators, although it was reported by one worker that she at one time also felt sick, and "so weak that she thought she would keel over." It is not known, of course, to what extent she had inhaled the carbon monoxide, but she was apparently as exposed as some, or most, of the others.

(2) A Negro youth (age 18), who had felt the "terrible headache" and sick stomach all day, reported that he forgot all about his own illness when he heard that his mother had collapsed. He rushed to her, carried her outside, and made extensive efforts to revive her—all before he requested any medical or other attention for himself.

Another hypothesis is suggested by our interview data: Persons at one social level may apply one interpretation to the situation as it faces themselves, and a different interpretation where it applied to persons at another social level. In this instance, two white men and two white women, who may have been as equally exposed to the CO as the Negro women workers, reported mild forms of similar symptoms, but at no point regarded these as deriving from the same source as the symptoms of the Negro women. Thus, even when the generality of the symptoms was clearly known, these respondents continued to regard their own symptoms as stemming from sources peculiar to themselves, while regarding the Negro women as reacting to a common exposure, thus implying a dis-identification of themselves from the latter workers. We emphasize, however, that the number of cases is too small to support any generalized statement in this regard. It may also be that this holds true only in cases of relatively mild threat such as this one.

SUMMARY AND CONCLUSIONS

Physical Aspects

1. In the absence of precise data concerning the relative concentration of carbon monoxide in the various parts of the plant, it is difficult to draw any definite conclusions concerning the relationship between severity of physical symptoms and other variables. However, the data indicate that the CO was widely distributed throughout the plant. Persons in all parts of the shop were affected. Moreover, those most severely affected (i.e., who were rendered unconscious) were also spatially distributed in the shop—some near the windows, some in the central area, some nearer the front, some nearer the back. The white workers in the front office tended to have less severe symptoms than the persons in the main working room, probably indicating less exposure. All those most severely affected were Negro. However, there were proportionately so few whites in the plant that it is impossible to infer anything from this. Where white and Negro of the same sex were equally

exposed (the men at the back) there were no apparent differences in physical symptoms by race. Men seemed to be less affected than women, though this could be explained either as a difference in exposure or in social roles (i.e., the males tended to occupy positions of greater responsibility). The data do not permit a distinction. There appeared to be no significant relationship between the severity of symptoms and age, marital status, or length of service in the plant.

2. In general, the physical symptoms reported by the respondents are those commonly associated with carbon monoxide asphyxiation. The clinical course of the symptoms closely paralleled those described by Hamilton and Hardy:

> The symptoms of acute poisoning may come on without warning, for the gas is odorless, tasteless and quite non-irritating. (The odor of "escaped gas" is due to other volatile compounds.) But as a usual thing some warning of danger is given unless the amount of CO is very great. Such a warning is usually a subjective symptom pointing to involvement of the central nervous system, which is the part of the body most vulnerable to the attack of carbon monoxide. It may be a sense of pressure in the head or a band-like constriction or throbbing, a feeling of weakness in the knees, mental confusion, headache, roaring in the ears, nausea, perhaps vomiting. This constitutes the first stage.
>
> The second stage is characterized by increasing paralysis and confusion. The headache, dizziness, and inability to think clearly, to decide and to act with energy, increase and render the victim peculiarly helpless, so that even if escape is possible he may perish. A person may become not only indifferent to the danger, but even soothed to drowsiness, to a condition like heavy drunkeness as the action of the anoxemia spreads to the spinal cord, the legs feel heavy and as if the knees were giving way. If rescue does not come in time, consciousness is lost, with vomiting and involuntary evacuations, sometimes with localized or general muscular contractions ....
>
> ... In a typical case of severe gassing, if death does not occur, consciousness is regained and a stage of excitement, even delirium, comes on, followed by depression, apathy, indifference to the surroundings, and inability to remember anything about the accident. An intense headache usually goes with this stage, also shivering and a complaint of cold. Rarely, however, do these symptoms persist for more than two or three days. The great majority of victims of carbon monoxide asphyxia recover without any lasting symptoms.*

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* Alice Hamilton and Harriet L. Hardy, Industrial Toxicology, (New York: Paul B. Hoeber, Inc., 1949), p. 235.

The increased severity of the symptoms exhibited by the respondents when they left the building and inhaled fresh air is also common in carbon monoxide asphyxiation:

> ... Men may be exposed all day to small amounts of carbon monoxide while at rest and not experience any effects, but on their way home, in the open air, may suffer severe symptoms, even to unconsciousness.*

Social Psychological Aspects

1. From a social psychological point of view, the essential element which distinguishes this event from other crises and disasters studied by the NORC Disaster Research Team is the unknown and undetected character of the causal agent. In perhaps the majority of disasters, the causal agent (e.g., fire, explosion, flood, tornado, etc.) is readily perceivable; it can be identified and categorized on the basis of well-known signs (sounds, smells, etc.). In the present case, however, the source of danger could not be perceived by the ordinary senses and the mode of detection was unknown to the victims. This event therefore provides suggestive data concerning the behavior that may be anticipated in a disaster involving an agent which is unknown or unfamiliar to the affected populace and whose impact is prolonged or cumulative in nature. (It should be emphasized, however, that the data are only suggestive in nature and that further study of similar events are needed in order to frame more definitive conclusions).

2. A general hypothesis that seems to apply in most disasters is that, if a person has no forewarning or expectation of the impact of a disaster, he initially tends to define or interpret the event in terms of cues that are familiar to him. That is, he tends to assimilate the disaster in terms of his previous expectations, knowledge or experience. Thus, to cite an example from a previous study, many persons in the Arkansas tornado initially interpreted the sound of the tornado as being that of a locomotive passing on the railway tracks near them. It was only after the shattering impact of the tornado that persons who had not seen the other signs of the tornado revised their interpretation to conform with the empirical reality.

In most cases, this re-definition of the situation—from the "usual" to the "unusual" and from the "non-threatening" to the "threatening"—occurs quite rapidly because of the easily-perceivable consequence of the disaster—i.e., the "usual" explanation or interpretation no longer "fits" the objective events. However, the present case provides a contrast to the usual rapid re-definition of the situation as one which is dangerous and which requires protective action. For several hours, the physical symptoms which the respondents experienced could be assimilated to their usual expectations. It was only after the persons experienced extremely severe symptoms and learned that others were also suffering similar symptoms that the danger was defined as something present in their immediate situation. Even after this realization, however, the exact cause could not be identified because they did not have the knowledge necessary for recognizing the pertinent signs.

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* Ibid., p. 224.

Thus, the hypothesis that may be drawn from the data of this study is that the "life history" of the attempts to interpret the situation tends to be prolonged and takes the form of exhausting all possible individual causes of their illness before looking for cues in their immediate situation. If this feature is characteristic of this type of disaster, it has important implications for disaster planning.

3. Two of the most fearful and anxiety-provoking features of the present incident were (a) the inability of persons to isolate a satisfactory cause of their illness and (b) the consciousness of the involuntary loss of self-control. The anxiety produced by these features was typified in the comment "I just got almost hysterical because I couldn't put my finger on what it was." It is hypothesized (1) that these elements are somewhat unique to disasters involving noxious gases or toxic agents which are odorless, colorless, tasteless, and non-irritating and that (2) anxiety arising from these sources can be anticipated on a considerable scale if the populace has no forewarning of the attack and no knowledge of countermeasures to take.

4. The data collected in this study provide additional support for the hypothesis that persons who have well-defined responsibilities to others tend to maintain better self-control and behave more adaptively than persons who do not have such responsibilities.

SOME IMPLICATIONS FOR PLANNING

The findings of this study suggest a number of implications for disaster preparedness and control, which probably should receive consideration in current planning:

1. Initial interpretations of the situation were in individual terms, so that persons exposed were less likely to take adequate protective measures. These interpretations usually persisted until there was considerable cumulative indication of the generality of the symptoms, thus suggesting a common source. By that time several of the victims had reached acute stages of the effects. If our meager data are any indication, it would seem that one of the most important psychological factors to be taken into consideration in planning relating to the possibilities of chemical or biological warfare, is this tendency to interpret symptomatic effects in terms of "normalcy." If the long period of time which elapses between exposure and recognition of danger is characteristic of this type of disaster, large numbers of persons may die or suffer severe illness in the event of a widespread chemical or biological attack--even though protective countermeasures are known to the authorities. This possibility would seem to re-emphasize the need for (a) educating the public to recognize the signs or symptoms by which these agents may be identified, and the appropriate protective measures to be taken; and (b) in the event of an emergency, the early identification of the presence of toxic agents by the protective and control authorities and the rapid dissemination of warnings and information concerning appropriate

action to the populace. However, it should be recognized that extensive emphasis on the symptoms of toxic agents may have some undesirable effects in the way of encouraging "paranoid" reactions—i.e., the seeing of symptoms where none exist. It is, therefore, important that educational programs be designed to steer a "middle course"—emphasizing the factual aspects and playing down those features which arouse suspicions and anxieties.

2. It is of interest to note that in the present case the victims were not satisfied by the newspaper reports or the word of the "investigators" that their illness was caused by "gas." Persons tended to disbelieve the newspaper accounts because these accounts did not take into account their lack of knowledge concerning the nature of carbon monoxide. Virtually all of them assumed that if there were gas present, they should have been able to identify it by smell; hence, because they were unable to smell gas, they gave little or no credence to the reports. This case emphasizes that communications must take into account the needs and state of knowledge of the group to which it is addressed. (In the present case, if the communications had pointed out that CO is odorless, tasteless, and non-irritating, they probably would have been more effective in alleviating the lingering anxieties of the victims.)

3. The data from this study also suggest that a group or population which has been exposed to a chemical or biological attack may continue to have considerable anxiety after the danger has passed unless they are given positive assurance by known and respected authorities. (In the present case, the failure of the authorities to explain the cause of the incident and reassure the workers that the danger was past tended to produce a needless continuation of the anxiety.)

4. In view of the fact that carbon monoxide is so common and pervasive a hazard in both industry and home, it would appear that industries should keep a constant check on the possible presence of the gas and the public should be more fully informed concerning the means of identifying its effects.

Appendix B-10

and

Appendix B-11

Abstract of "A Study of Panic: Its Nature, Types and Conditions"

and

Selected Bibliography on Panic

Abstract of

"A Study of Panic: Its Nature, Types, and Conditions"

(Unpublished Master's Thesis, Department of Sociology,
University of Chicago,
June, 1953)

by

Enrico L. Quarantelli

A STUDY OF PANIC: ITS NATURE, TYPES, AND CONDITIONS

PREFATORY NOTE

The word "panic" is conceptualized in many different ways. For a specific purpose, of course, any meaning might be attached to the term. However, the term of necessity will have little general research utility and limited practical derivations so long as it is applied to events of diverse character, causation and consequences. Certainly systematic knowledge and understanding can hardly be achieved if studies purporting to deal with "panic" are continually dealing with totally dissimilar phenomena. For research purposes, it is essential that the meaning of a term be restricted to cover a class of events which has a high degree of internal homogeneity and which can be distinguished in a reasonably precise fashion from other classes of events. The following paper attempts to single out from among the varied phenomena which have been called "panic" a group of events which both from a practical and theoretical viewpoint seem to be sufficiently homogeneous and sufficiently distinct to warrant separate treatment.

The following paper is an abstract and revision of an analysis based primarily upon interview data gathered by the National Opinion Research Center Disaster Team. Consideration of space has prevented presentation of all the evidence used in the lengthier study. Although some case material is cited to illustrate major points, the reader is referred to the original work, which fully documents the general statements reported in this abstract.

THE LITERATURE ON PANIC

Up to the present time little attention has been given to a systematic and detailed analysis of the phenomenon of panic. This easily can be seen by reviewing the fragmentary and scattered literature on the subject.[1] Although it occasionally contains very suggestive remarks and illuminating insights,[2] it is almost completely non-empirical in character. With a few exceptions, it

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[1] For a detailed analysis of about fifty specific writers on panic, see Enrico L. Quarantelli, "A Study of Panic: Its Nature, Types, and Conditions," (Unpublished Master's thesis, Dept. of Sociology, University of Chicago, 1953, 1-39. See also Anselm L. Strauss, "The Literature on Panic," Journal of Abnormal and Social Psychology, XXXIX (1944), 317-328. The latter confines itself to a critique of the "causes" of panic as advanced by about seventeen (primarily military) writers.

[2] See, for example, Strauss, Ibid., Irving L. Janis, Air War and Emotional Stress (New York: McGraw-Hill, 1951), 26-41, 43, 93-94, 161-162, 192-193; Richard LaPiere, Collective Behavior (New York: McGraw-Hill, 1938), 437-461; Alexander Mintz, "Non-adaptive Group Behavior," Journal of Abnormal and Social Psychology, XLVI (1951), 150-152; Paul B. Foreman, "Panic Theory," Sociology and Social Research, XXXVII (1953), 295-304.

consists of: 1) deductions from pre-existing theories of personality or social life which were developed quite independently of any empirical study of panic, or 2) unsystematic remarks based upon everyday preconceptions and totally unverified notions of what supposedly transpires when panics occur, or 3) ad hoc statements representing impressionistic reflections on a few selected and sparsely detailed accounts by observers of any one of the variety of activities that in popular parlance are termed panic. This lack of concrete, sufficient, and adequate data (the gathering of which admittedly presents great practical and methodological difficulties) has prevented students of the problem from producing a complete and systematic discussion of the phenomenon.

In surveying the literature one becomes aware that there is little consensus among the writers on what they mean by panic. There is no single referent. Different writers, by example or otherwise, refer to basically dissimilar events and occurrences, ranging from covert personal and group moods and feelings to overt individual and collective actions and undertakings. Thus, the most distinct and separable kinds of phenomena, such as a single individual's pathological anxiety to a group's coordinated actions, are labeled and discussed as panic.[1] Needless to say, this heterogeneity of meanings assigned to the term panic renders it virtually useless for theoretical or practical purposes.

As noticeably striking as the lack of a single referent is the absence in the literature of a descriptive picture or a list of criteria which would enable any objective observer to distinguish between a case of panic as such, and other closely related phenomena. The unique and outstanding features of the activity are rarely depicted.[2] Not only are the central characteristics by which panic is to be identified seldom made explicit but even less frequently are the outer bounds of the phenomenon delineated.

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[1] Almost any kind of socially disorganizing or personally disrupting type of activity has been characterized as panic. The range includes everything from psychiatric phenomena to economic phenomena (e.g., the "panics" involved in bank runs, stock market crashes, depressions, etc.). Thus, in one recent book there are cited as instances of panic such phenomena as lynching mobs, suicidal epidemics, plundering troops, spy hysterias, military retreats and surrenders, social unrest, individual and collective anxieties, war, psychotic behavior, mass hysteria, riots, neurotic behavior, economic and financial crises, mutinies, mass executions, animal stampedes, confused voting behavior, orgiastic feasts, the activities of war refugees, and collective tensions. See Joost Meerloo, Patterns of Panic (New York: International Press, 1950). For a comparison of the diverse ways in which the term panic is used by different writers, see the various articles contained in Transactions of the Conference on Panic and the Prevention and Control of Panic (New York: The New York Academy of Medicine and the Josiah Macy Jr. Foundation, 1951).

[2] Strauss, op.cit., lists a few of the descriptive words sometimes used by writers on panic. These include such terms as: suggestion, hallucination, collective surprise and shock, mental contagion, uncertainty, confusion, loss of faith in leaders, wild flight, anxiety, mass imitation, shattering of group bonds, heightened imagination, insecurity, and tension.

The literature does contain numerous remarks and implications to the effect that panic is an "irrational" activity. However, not all writers mean the same thing when they use this term. From an analysis of the context in which the term irrational is used, at least three different meanings can be discerned.

1. When it is said that panic is irrational, what is being implied is that it is anti-social. That is, panic is conceived of as involving actual bodily contact of a destructive sort on the part of the participants. In general, writers who view the phenomenon in this way are implicitly working with a stereotypic image of panic which visualizes it primarily as a chaotic crowd of individuals trampling over one another in a manner analogous to a wild animal stampede.

2. At other times the term irrational is used synonymously with non-functional or maladaptive behavior. That is, the activity is viewed as quite inappropriate to the situation. In fact, many writers see it as the least adaptive mode of activity that could occur under the given circumstances.

3. The third meaning implied by the use of irrational in regard to panic is that the activity is impulsive and devoid of any conscious thought. That is, participants are conceived of as acting reflexively or instinctively without any conscious awareness of what they are about. In some cases, writers who work with this conception conceive of a panic participant as one who has lost his humanness, who has been stripped down to or who has reverted to the animal level.

Not only is there disagreement on the nature of panic, but there is also a significant lack of agreement on the conditions which produce or facilitate panic. Seldom is the same aspect treated or even mentioned by more than a few students of the phenomenon. Conversely, there is a wide divergency of emphasis concerning which factor or set of factors is responsible for panic.[1] The causative conditions specified by various writers include such diverse factors as: the state of the weather, the presence of crowd conditions, the continued absence in the organism of a specific vitamin, psychological isolation, suggestion and imitation, fatigue, social unrest, hunger, the shattering of group solidarity, the presence of predisposed personalities, lack or loss of leadership, emotional instability, poor group morale, lack of critical ability, fear, mimicry, emotional tension, crisis situations, lack of personal and collective discipline, etc.

One unfortunate result of this advancement of multiple causes of panic is confusion in the level of analysis. Factors which are incommensurable and which logically belong to clearly separable planes of phenomena are grouped together. Thus, physical, physiological, psychological, social psychological, and sociological aspects are all discussed as if they were one. They are treated as if they were at a same general and interchangeable level of analysis.

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[1] Strauss, Ibid., 323, in arriving at the same conclusion states that it indicates that the conditions of panic have not been effectively determined or that there are diverse kinds of panic. Our own research would seem to suggest that it is not a question of one or the other but rather that both his points are valid.

Furthermore, many of the diverse conditions noted could just as well be stimulative conditions for phenomena that no one would call panic. In part, this stems from the fact that many of the factors advanced (e.g., "suggestion" or "mental contagion") are of a very broad nature which are operative in the most diverse phenomena.[1] The stated conditions for the production of panic, in other words, are not the necessary and sufficient conditions needed to account for the phenomenon. They are not specific enough. As such they cannot be designated either singly or in combination as the conditions which are accountable for panic.

The following discussion of panic attempts to do three things: (1) present a systematic social psychological view of the nature of panic; (2) delineate the types of panic that can be differentiated; and (3) outline the conditions associated with the emergence of panic.

The statements which follow stem from a comparative and analytical examination of specific instances of the behavior.[2] However, while this analysis is based on empirical data no claim is made that the conclusions are definitive or final--they are primarily suggestive. Their fuller validation is dependent on the results of future research.

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[1] In making a somewhat similar point Strauss notes that the conditions most frequently advanced are conditions for numerous other types of collective behavior. Ibid., 325-326.

[2] The data have been gathered from two sources. The main body of it is from the tape-recorded, non-directive type of interviews gathered by the Disaster Team of the National Opinion Research Center. For the purposes of this study about 150 of these interviews, averaging about an hour and a half in length, were analyzed. Almost all of them were gathered in connection with disasters in which the writer participated in the field work and personally obtained a number of the interviews. Three events in particular provided the bulk of the data. These were: 1) a series of house explosions in Brighton, New York, September 21, 1951; 2) a plane crash into an apartment house in Elizabeth, New Jersey, February 11, 1952; and 3) an earthquake in Bakersfield, California, August 22, 1952. The rest of the analyzed interview data were drawn from such disasters as tornadoes in Arkansas and Minnesota, a coal mine explosion in West Frankfort, Illinois, a plane crash into a crowd in Flagler, Colorado, hotel and house fires in Chicago, and a factory explosion in St. Paul, Minnesota. This primary source of data was supplemented by such material as could be found in secondary sources. That is, an analysis was also made of carefully evaluated participant and eyewitness accounts of individuals in crisis situations wherein panic had sometimes occurred.

THE NATURE OF PANIC

A. Overt Features. The outstanding overt feature of panic, so far as outward observation is concerned, is the flight behavior. While flight is not peculiar to panic behavior, it is nonetheless an ever present feature of the phenomenon whenever it occurs. The flight behavior generally takes the form of actual physical running. However, it may also be manifested in varying activities such as driving vehicles, swimming, riding horses, rowing, climbing, jumping, etc. The fact that in panic most personal motor coordination is not lost permits the flight to be expressed in a number of ways. However, since the vast majority of situations wherein panics occur do not lend themselves to non-running activities, panic flight is primarily manifested in running.

The flight is always oriented with reference to a threatening situation; that is, people in panic flee from a particular locale. Usually this involves movement away from immediately perilous objects in the overall threatening situation. Panic participants thus run away from, for example, that section of a building which is on fire. However, if a perilous object lies between presumed safety and the endangered persons, the flight may be in the direction of an immediate peril. Thus, people in panic may run toward danger objects if escape from the overall threatening situation lies in the same direction (e.g., toward sheets of flame if the only known exit is on the other side). Much panic fleeing which from an outside observer's viewpoint appears to be blind fleeing into danger is probably of this nature. At any rate, panic flight is not random or helter-skelter; the participants do not run every which way. There always is some direction to the fleeing.[1]

The fact that the flight is never random but is always directionally oriented with reference to a threatening situation is related to the fact that in panic there is no overt attempt to deal directly with the danger itself. No attempt is made to control the threat, to act towards it or to manipulate it in any way (in such situations where this is a physical possibility). It is a mark of panic that the only overt action taken with reference to the danger is an attempt to get away from it.

That absolutely no overt effort is made to control the threat does not mean that panic is always individually non-functional or collectively maladaptive. It often is not. Frequently the flight of panic is the most effective action that could be undertaken in a particular situation. To flee from a building whose walls are tottering from an earthquake is under most circumstances the most effective course of action that could be followed.

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[1] At least two factors play a part in the determination of the specific direction of flight, e.g., whether a person will go out the back or front door of a house that is thought about to explode. These are 1) a reasonably executed and especially a habitual behavior pattern and 2) the course of the interaction among individuals following the discovery of danger. Of course, these factors are operative and influential only within the confines of the particular physical setting the participant finds himself in at the time of crisis.

In such instances the panic behavior is functional, if functionality under such circumstances is thought of as activity which from an objective point of view is appropriate to the maintenance of the life of a threatened individual. Similarly not all panic behavior is collectively maladaptive. There are occasions where flight simultaneously engaged in by a number of people not only is appropriate in itself but also has no anti-social consequences.

Panic rather than being anti-social is non-social behavior. It is non-social in the sense that ordinary social relationships are disregarded and pre-existent group action patterns fail to be applied. This disintegration of social norms and connection of action with reference to a group or institutional pattern usually results in the shattering of the strongest primary group ties and the ignoring of the most expected behavior patterns (e.g., mothers leaving their babies exposed to a danger while they themselves flee). This non-social aspect may be short lived but it is this feature which, even at an overt level, distinguishes many cases of panic from controlled flight behavior. In the case of controlled flight, confused, random, uncoordinated activity may be manifested, but the normal social bonds are not shattered and the conventional interactional patterns are not totally disregarded.

Panic behavior is highly individualistic behavior. There is no attempt made to act jointly and cooperate with one another in coping with the danger. In short, it represents a complete breakdown in group or corporate action.

B. Deprivation. Panic participants always define the situation as highly frustrating, both personally, and physically. This is exemplified in the following account by a man who looked up and saw a flaming plane diving towards the street where he was putting a wheelbarrel:

> This thing seemed to me as if it was coming right at me. I was like a scared rabbit across the street. My instinct—I simply knew that to save my neck. I was scared. This thing went up in a big ball of flame and gasoline. It exploded. All I was thinking was that this big ball of gasoline was coming down on top of me and I was making a run in order to get away from it. I was running pell-mell across the street. I was looking at this big ball as I was running like a scared rabbit for fear it was going to pounce on my head, you know. The only thing I was thinking as I was running across and I was looking up at this big ball of fire, I was thinking to myself, I wonder if any part of this is going to hit me.[1]

The perception of danger to one's own bodily safety is an especially prominent feature of panic. This is quite unlike those cases where there

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[1] Unpublished interview, NORC Disaster Project, Elizabeth I plane crash, December 16, 1951.

is perception only of an indirect threat to the self as may occur when there is identification with distant loved ones believed endangered.[1] In panic, there is a very direct sense of a threat to physical survival.

In this connection it may be noted that the orientation of attention of panic participants is always to the future, what subsequently may endanger the person. Attention is never directed to a past danger, to what has already happened. When a situation is quickly defined as one where the danger has passed, e.g., after a plane has crashed into a watching crowd, there does not arise any anticipatory perception of a threat to the bodily self. This contrasts with the cognition of individuals in panic who view a situation in terms of potential rather than past possibilities of drastic consequences to their bodily self.

Furthermore, panic participants see the threat as very immediate. That is, the danger is thought to be so near at hand that survival is felt to be dependent on a very rapid reaction, something requiring immediate adjustive behavior in order to survive. Thus, for example, when strafing planes are diving upon war refugees or when an earthquake rocks a building and debris is showering down, the consequences of the threat are seen as only seconds away. A worker caught in a plant explosion and who fled in panic after he recovered consciousness put it this way:

> When I came to, the dust and minerals and everything was crashing all around. My first thought was that something would fall on me and finish me. My main thought was to figure a way to get out.[2]

Whether the fulfillment of the threat be seen as a matter of seconds or a little longer, it is never pictured at any distant time in the future.

Not only do panic participants know what they are immediately afraid for, (i.e., their own physical safety) but they also are conscious of what

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1 This is well exemplified by the reactions that occurred to a series of gas explosions in the suburban town of Brighton, New York. There, the husbands who were away at work felt themselves threatened, not because they thought they were bodily endangered in any way, but because their wives were in danger. That differential reactions are evoked, depending on the directness of the threat, is reflected in the fact that these husbands did not panic but a number of wives, who were directly threatened, did give way to at least momentary outbursts of panic flight.

2 Unpublished interview, NORC Disaster Project, St. Paul, Minnesota plant explosion, February 6, 1951.

they are afraid of. The fear[1] that is experienced in panic is of something specific which can be designated, which can be particularized in some way. The subjective reaction of the panicky individual is never of the unknown as such. It is always related to a specific threat.

In fact, the danger in panic is also seen as having a spatial location. In defining the situation, the panic participant sees the threat associated with a definite place. As one worker who fled after a factory explosion expressed it:

> My main thought was to get away from the building because I had in mind it might fall. At the time I knew I was in danger of death but after I got out of the building I felt I was out of danger.[2]

This incident also exemplifies the fact that panic flight will generally cease when the designated area of danger (as it is defined by the fleeing person, and not as it may be viewed objectively) is escaped from. Once an individual believes he is out of the danger area the acute fear reaction will subside and he will cease fleeing.

However, upon becoming afraid, people do not ordinarily bolt in panic. Individuals may feel extreme fear and yet engage in a variety of non-panic behavior including, for example, direct action against the danger. To the extent that they do so it is because they check their fear, i.e., their impulse to flee.[3] The desire to run from the threatening situation is not

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[1] Fear, rather than anxiety, is the affective component of the panic reaction. Along one dimension, at least, fear and anxiety may be thought of as poles of a continuum. This is in regard to the specificity of a threat from the viewpoint of the individual. The fear-stricken individual perceives some highly ego-involved value greatly endangered. The threat is something that can be labeled, localized in space, and therefore potentially can be escaped from. The threat is specific. In contrast, there is no such recognition and judgment by the anxiety-stricken individual. Anxiety is marked by an inability to designate any object in the environment to account for the diffuse sense of foreboding or even dread the person is experiencing. This inability to label anything specific in the immediate surroundings to account for the subjective state prevents any attempts at flight. Physical withdrawal requires a specific object or situation from which an orientation can be taken. For further discussions of this point see Kurt Riezler, "The Social Psychology of Fear," American Journal of Sociology, XL (1944), 489-498; and Rollo May, The Meaning of Anxiety (New York: Ronald, 1950), 45-58.

[2] Unpublished interview, NORC Disaster Project, St. Paul, Minnesota plant explosion, February 8, 1951.

[3] Young points out that "for human subjects to designate an experience as fear, the presence of an escape impulse is required." See Paul T. Young, Emotion in Man and Animal (New York: John Wiley and Sons, 1943), 197.

allowed to express itself. Self-control is maintained. Conversely, in panic there is a collapse of existing curbs on the impulse to flee. The panic participant is one who has not been able to check his impulse to flee.

A concomitant of this loss of self-control is that panic participants become highly self-centered in their activities. Behavior becomes almost exclusively self-oriented. The individual thinks only of saving himself. This is a counterpart of the individualism of the overt flight behavior noted in the previous section. Subjectively it involves a complete focalization upon the thought of getting oneself out of the threatening situation.

It is to be noted that there is conscious thought on the part of the panic participant. He has to be sufficiently conscious to define and continue to define the situation as a highly threatening one if he is going to engage in directional flight behavior. Apart from the necessity of an acute fear reaction for a panic outbreak, the fact that a participant is at least minimally conscious is indicated by his taking into consideration a number of things. For example, he does not run blindly into a wall; he heads for a door; and he goes around objects and obstacles in his path rather than attempting to crash through them. Finally, individuals engaged in collective panic are at least partially aware of the activity of others although they may not directly respond to them.

However, to state that panic flight involves some conscious thought on the part of participants, is not to suggest in any way that it is a highly rational activity. It certainly does not involve the considerate weighing of possible alternative lines of action. As one girl who fled in panic from a building during an earthquake expressed it, "all I thought about was getting out of there."[1] On the other hand, panic flight does not involve irrational thought if by that is meant faulty deductions from certain premises. From the position of an outside observer with a much wider spatial perspective this may appear to be the case but, from a participant's viewpoint, given his limited perspective of only certain portions of the situation, no such interpretation of irrationality can be made. To the extent that he thinks of it, his flight action seems to him quite appropriate to the specific situation with which he has to cope.

Actually, rather than being rational or irrational, panic behavior is non-rational. Panic participants think of fleeing but they do not take into consideration the consequences of their action. The danger facing them is seen as so overwhelming that there is no anticipation of the consequences of fleeing (which may be even more dangerous than the panic-inciting threat itself). In fact, alternative courses of action are not considered. The panic participant is conscious and aware of his flight action but is entirely oriented to getting himself out of the immediate situation. It is in this short-sighted and focused sense that panic behavior is non-rational.

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[1] Unpublished interview, NORC Disaster Project, Bakersfield, California earthquake, August 22, 1952.

To summarize: Panic is an acute fear reaction marked by a loss of self-control which is followed by non-social and non-rational flight behavior. The one outstanding covert feature of the phenomenon is the acute fear reaction, that is, a strong emotional reaction subjectively experienced as an impulse to run from an impending danger. Panic participants are seized by fear of a specific object which is defined as involving an immediate and extreme threat to the bodily self. The most prominent overt feature of the phenomenon is the flight behavior which, while not necessarily non-functional or maladaptive, always involves an attempt to remove oneself physically from a spatially designatable threatening location. The link between these two features lies in the fact that panic is marked by loss of self-control, that is, by unchecked fear being expressed in flight away from a supposed danger. Two other prominent features of this phenomenon are non-rational rather than irrational thought and non-social rather than anti-social behavior. The link between these two aspects is that panic participants do not weigh the social consequences of their non-goal directed flight and therefore are highly individualistic and self-centered in their actions with reference to one another. There is no consideration of alternative courses of action to flight. The only conscious thought being to remove oneself from the danger situation, there is an ignoring of the ordinary social norms and interactional patterns with a consequent breakdown in concerted behavior.

TYPES OF PANIC

It is possible to distinguish at least three major types of panic, two of a collective and one of an individual nature.[1] The presence or absence of social interaction as a vital mechanism in the appearance of the activity is the basis for differentiation between the collective and individual types. Collective panics are socially generated; they arise primarily as the result of interaction among the participants. The individual type of panic, on the other hand, is neither socially initiated, developed nor sustained—its appearance is dependent on each person's independent perception of a physical threat. Grossly stated, collective panics may be said to stem from social factors, individual panics from physical factors.

The two kinds of collective panic may be termed (a) precipitous and (b) emergent.

A. Precipitous Panic. Panic of this type typically originates in sudden crisis situations. Prior to the panic flight, the participants generally are already in contact with one another and engaging in routine or institutionalized activities. Most frequently the crisis is precipitated by a relatively sudden and somewhat ambiguous event which disrupts the on-going activity. Usually the situation is then vocally defined as highly dangerous by one or a few individuals and this idea of a threat is quickly communicated to the other individuals present. In the very rapid interaction that follows, the definition of the situation is confirmed and the ensuing flight behavior is sustained.

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[1] The only author who explicitly notes the possibility of different types of panic is Strauss, op. cit., 323.

The initial definition of the situation, while it portends immediate danger to all those who hear it, is not decisive in initiating action.[1] Rather, the most crucial aspect is what occurs in the interaction immediately after the situation has been defined. Because of the consequences implied in the vocal definition, the hearers are affected by fear. In addition, there is a heightened responsiveness to the immediate surroundings—notably any activity on the part of other human beings. Each looks to the other.

If some individuals begin to make movements toward fleeing or actually do start running, more and more people will begin to do the same. Each individual interprets the behavior of others as confirmation of his belief that the situation is potentially very dangerous. The perceived behavior of others not only confirms the initial definition but it also supports the fleeing. It reinforces the individual's fear and in this way precipitates and sustains his own flight behavior.

Interaction in precipitous panic is usually at a perceptual rather than a verbal level. There is little verbal communication about the danger. Yet the interaction that occurs is of vital importance in the development of fear and subsequent flight activity.[2] This is because already-fearful persons tend to interpret the behavior of others in terms of their own fearful feelings and danger-oriented understandings of the situation. In a sense, they "read" expressions of fear into the behavior of others with a consequent feeling of support for and reinforcement of their own fear reactions.

In summary, precipitous panic may be said to arise among a number of spatially contiguous individuals who are confronted by a sudden crisis situation. The initial definition of the situation as highly dangerous is supported by perceptual interaction, and the direction of activity and continuation of flight is dependent upon this mutual interstimulation and reinforcement.

B. Emergent Panic. Somewhat different in origin and development is emergent panic. This type of panic flight is the climactic outcome of highly intensive verbal interaction by a number of socially disorganized but spatially contiguous individuals. In their interaction the participants mutually support one another's definition of a progressive crisis situation as involving real danger. This type is well illustrated by the panic which sometimes occurs in ship disasters.

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[1] This is clearly seen in the case of the most likely situation for precipitous panic—i.e., a fire in a theater. When smoke is seen and someone yells "Fire!", contrary to what is believed and often stated, panic does not immediately follow. The labeling of the somewhat ambiguous event simply indicates to people that they may be in great danger.

[2] Perceptual interaction is also important in giving direction to panic activity. Flight becomes controlled by the action of others. Thus one worker reported after a plant explosion: "There was a gush of flame and smoke coming up the elevator shaft. I just started running. Lots of other people were running too. That's how I knew where to go." Unpublished interview, NORC Disaster Project, St. Paul, Minnesota plant explosion, February 8, 1951.

In contrast to precipitous panic, emergent panic gradually develops out of crowd-like activities. That is, it emerges out of a background of acute excitement and general social confusion. As such, it is primarily a collective product, for it is in the milling process initiated by the crisis-evoking event that the situation becomes clearly defined as highly dangerous.

Typically, the event which initiates the crisis is not at first perceived as involving immediate personal danger. It generates little if any fear. No urgent need to act with reference to an immediate peril is felt. However, the crisis event is at least potentially threatening to the extent that it evokes enough concern to initiate people to talk about and speculate about what will occur. Unlike precipitous panic, there is a great deal of verbal communication which leads to a relatively gradual, spiraling, increase of tension and fear which finally is released in panic flight.

One characteristic of this type of panic is that periodic panic outbursts may occur in the same objective situation. Clusters of excited people may work themselves up time after time into a state of fear, climaxed each time by a flight. There may be no real increase in the danger, but the interaction among the socially disorganized people may lead to sporadic panic outbursts.

C. Individual Panic. Individual panic may be thought of as the simultaneous but generally short-lived flight behavior by socially isolated persons who independently and initially define an instantaneous or sudden crisis situation in such a way so as to come totally under the control of a danger object.

The crisis situation in individual panic is from the very first defined as extremely dangerous. There is evoked a very acute fear reaction as soon as the situation is defined. As one woman noted about her initial reaction to an earthquake, "the first thought you have is to run. I had that thought."[1]

This acute consciousness of fear, in contrast to other types of panic, results solely from the participant himself suddenly perceiving an imminent threat to personal survival. The situation does not become defined through interaction with others, or by any reinforcement of tentative definition through the behavior of others. An illustration is the case of a woman in the Brighton explosions who went to investigate a hissing sound she heard coming from a heating unit. As she stated it: "As soon as I realised the gas was escaping from the hot water heater I thought my house was going to blow up. I just picked up and ran out."[2] Such an initial and independent interpretation of the situation is characteristic of all individual panic.

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[1] Unpublished interview, NORC Disaster Project, Bakersfield, California earthquake, August 22, 1952.

[2] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

This is related to the fact that in this type of panic the responding person comes totally under the control of the threat. Instead of reacting to the behavior and stimulation of others (in cases where interaction is a possibility) he reacts solely in response to the attention-controlling danger object and directly on the basis of the flight impulse aroused by the fear of the danger object. Or, as a woman who fled in panic leaving her child behind when a near-by explosion shook her house, stated it, "the first thing I thought of was a bomb, naturally, and I ran out. I just felt it was a bomb and I ran."[1] This complete domination by the threat from the first realization of danger is a major characteristic of individual panic. It is a feature not found in collective panics where subjective preoccupation is, in a sense, divided between the threat and the presumed interpretation of it by others. In collective panics the reactions of others to the threat is a factor of considerable importance.

In individual panic the threat is initially so totally attention getting and focusing that it blocks out any conscious responsiveness to what others are doing. There is no awareness of what others may be doing. In fact, this type of panic generally arises among physically separate, non-communicating persons. Such panic represents like action in response to the same stimulation on the part of non-interacting participants. This in itself contrasts with collective panics which always necessitate at some stage of the process not only contact but a measure of vocal or perceptual interaction among the participants.

D. Some Other Aspects of Panic. One relatively frequent occurrence is for a number of different panics of the same collective type to occur concurrently in the same general crisis situation. Thus, in ship disasters small groups of passengers may be cut off from contact with others. As the members interact with one another each aggregate may come to engage in panic. To the extent that each group does so, every occurrence of flight is a separate panic. It is a question of panics rather than a single panic. In other crisis situations several panics, each arising out of its own particular social matrix, rather than a single panic may develop.

Moreover, panic flight at times may occur intermixed with other forms of behavior. An individual may be in panic at the same time his spatial neighbor may be acting in another way. While a simultaneous intermixture of behaviors is not always prevalent in small localized crises, any widespread dangerous situation will usually evoke a full range of non-institutionalized to routinized or habitual behavior. The panic flight that occurs in such situations is very likely to occur concurrently with and physically interspersed with non-panic behavior.

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[1] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

CONDITIONS FOR PANIC

Panics occur following crisis[1] situations but not all crises eventuate in panic. Flight behavior is only one possible outcome of such situations. Furthermore, panic is only one possibility in those crises in which the danger is defined as a relatively immediate and potential threat to the physical self. With the exception of the armed forces, it is to be noted that there exists no institutional pattern for meeting such a situation. Consequently, the alternative courses of action available may range from direct attack to movement away from the danger object. The movement away from danger may take the form of controlled withdrawal behavior[2] but, under specific conditions, will take the form of panic flight.

A. Specific Conditions for Emergence of Panic. Clearly the most important condition for the occurrence of panic is the feeling or belief on the part of the individuals in danger that they may be unable to escape from the threat. At the initiation of the flight behavior the participants think or sense that there is a possibility that they are going to be trapped. As a woman who fled from her apartment when she thought a plane was going to hit it stated:

> I didn't even think anything except getting myself out. From the time I left my bed to the door that's the only thing I could think of—am I going to get out? Am I going to be trapped?[3]

It should be noted that the important aspect is the belief or feeling of possible entrapment. This is clear from the remarks of panic participants. It is not that affected individuals believe or feel they are definitely

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[1] Broadly conceived a crisis is produced by an interruption of an habitual or on-going line of activity. The interruption need not be of a violent nature. Any crisis, however, is marked by a focusing of attention on the introjected stimulation and attempts at adjustive behavior. From its very nature it necessitates some new behavior on the part of involved individuals. W. I. Thomas, Source Book for Social Origins (Boston: Gorham, 1909), 17-18.

[2] Panic flight is clearly distinguishable from controlled withdrawal behavior. The latter, while like panic in that it involves the physical separation of oneself from the danger, is considerably different in that it is controlled behavior. That is, the fear impulse is curbed to the extent that the normal social bonds and relationships are maintained and activities are carried on more or less in the usual corporate way. Thus, when a plane hit an apartment house in Elizabeth, New Jersey most families evacuated as units, neighbors were warned, alternative courses of action were discussed, etc. People were running around and there was a great deal of confusion and partial social disorganization but the whole web of social and human relations did not collapse as it does when full panic flight occurs.

[3] Unpublished interview, NORC Disaster Project, Elizabeth III plane crash, February 11, 1952.

trapped. In such cases panic does not occur as it did not in the case of the woman who said: "I felt as if I were trapped and didn't know where to run."[1] The flight of panic arises only when being trapped is sensed or thought of as a possibility rather than an actuality.[2]

It is not necessarily (although this is most frequently the case) a question of actual physical obstacles to movement. War refugees who are caught in the open when planes are diving upon them sometimes feel themselves trapped as much as theater patrons who discover the exits are becoming jammed by struggling people. This is true because in both instances the affected individuals see the possibility that they might not be able to remove themselves from their exposed position. In this sense, the fact that there may be no actual physical obstacles to movement, as in the case of being in the open, does not prevent the appearance of the panic-inciting feeling of being trapped. This is exemplified in the case of a woman in the Brighton explosions standing in the open street before her all-electric, and thus presumably safe, home. She relates how she was looking at a nearby house which was afire:

> I thought if that house goes the one next to me is going to go too and I'd be in the center of it. I felt perfectly safe until the house next door went up. I heard the crash, the house went up and I went. I felt I wanted to go. I wanted to run. Get away. Get away. You wanted to just get away.[3]

This woman felt she would be caught "in the center of it," that she would be trapped and exposed to the danger even though there were no physical obstacles to her movement and she was out in the open.

Actually it is only when the actual or presumed blockage of escape to safety is related to immediate consequences that the feeling of being trapped results in the generation of panic. Only when being trapped is seen as something that is going to involve immediate personal danger, will it matter in the initiation of panic behavior. Such occurred in the following instance related by an individual who was in the top story of a factory shattered by an explosion:

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[1] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

[2] Janis discusses a similar point without, however, drawing a distinction between possibility and actuality. On the basis of our data this is an important distinction, because different kinds of overt behavior follow if the situation is defined in one or the other of these ways. Op. cit., 260. Foreman, in his discussion of Janis, raises a somewhat similar point. He concludes that "panic occurs in the presence of events interpreted as acutely and uncontrollably dangerous only when avenues of possible escape are evident." Paul B. Foreman, op. cit., 296.

[3] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

> Six or eight of us became panicky when we found the stairways blocked by chunks of concrete. The dust, which looked like smoke, made us think that the building was in flames below us.[1]

In this particular instance the behavior never did evolve into full panic. The important point, however, is that the behavior started to take that form because the men thought themselves possibly trapped atop a burning building. As it is in all panics, they reacted to the immediate dangerous consequences of possible entrapment rather than to being trapped as such.

The other specific condition which is necessary but not unique to the occurrence of panic is a feeling of great helplessness in the face of a danger. This condition has two components. One is a feeling of impotency or powerlessness, the other is a sense of "aloneness." The feeling of impotency or powerlessness of panic participants is in regard to bringing the threat under control. It is with reference to the inability of the individual (and in cases where it applies, the collectivity)[2] to prevent the consequences of the impending danger from occurring. It has nothing to do with the ability of the fear-stricken person to flee. Thus, there is the case of the woman who reported:

> As soon as I realised the gas was escaping from the hot water heater I knew it wasn't anything to monkey with, something not to play with. I knew that an accumulation of gas would blow up. I mean water you could cope with, dumping it out or something, but with gas I don't know anything. I thought my house was going to blow up. I was really scared. I ran out.[3]

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[1] Unpublished interview, NORC Disaster Project, St. Paul, Minnesota plant explosion, February 8, 1951.

[2] The sense of powerlessness in collective panics is generally socially generated. In the interaction that occurs there is created a collective feeling that nothing can or will be done to stem the threat. At the beginning of a crisis, individuals may see themselves as personally powerless (to handle the threat) and be greatly afraid but at the same time be depending on others, especially those standing in certain social relationships to them. It is when these people do not respond in the expected way that the occurrence of panic is greatly facilitated. This appears most clearly in ship disasters, where passengers usually become very alert to any signs that could be taken to indicate that the crew also considers the situation as out of hand. In all such instances, when an individual feels himself powerless and is depending on others for protection and when there are signs of their not being able to grant it, the appearance of panic is greatly facilitated. The sense of individual helplessness is enlarged into one of collective impotency in the face of the danger.

[3] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

Panic participants have this feeling of powerlessness with regard to directly bringing the threat itself under control but they do not sense any hopelessness with reference to getting oneself out of danger by fleeing.

The other important aspect of the sense of helplessness is the feeling of isolation or "aloneness." It is the emergence of a feeling of having to act and of having to depend on oneself alone to see the way through to safety. Thus, one woman who was working in a plant with a number of other women when an earthquake struck, stated:

> When it started shaking so bad I noticed that I was there by myself. I felt even more scared. When you're by yourself in something like that and there's nobody to depend on. There was nobody around. I don't know where they disappeared to. I didn't see nobody. I ran out.[1]

In this case not only did the woman feel trapped and impotent but, as the above quotation almost explicitly states, her sense of powerlessness was compounded by the feeling she had been abandoned by her fellow workers. She felt she had to depend on her own actions alone to save her life. In all cases of panic, this feeling of "aloneness" or sole dependency on one's own self is present to some degree.

This is especially true of participants in individual panic. In fact, it is inherent in the very nature of individual panic itself. The threat is seen as so great and so completely focalizes the attention of the individual that he can not help but feel totally alone and dependent on himself in evading the danger.

B. Additional Factors Contributing to Panic. Two contributory conditions seem to be of importance in many cases of panic. One is the existence of a collective or group pre-definition of a crisis situation as one that is likely to eventuate in panic. The other is previous experience in crises that have left the affected persons highly sensitized to signs of new danger.

Pre-definitions of crisis situations are sometimes a factor in collective panics. That is, before the actual crisis arises there already exists in people's mind a conception of the dangerousness of the possible situation. It is thought to be dangerous because of the probable behavior of others under the given circumstances. The simplest example of this is the common belief that a fire in a crowded place is an especially serious threat to anyone involved because, among other things, panic is a very likely outcome. This predefining of a situation as potentially panic-producing is important in its direct effect on the definer's own behavior. An individual will begin to flee in order not to get caught up in the expected panic. If all present act on that supposition and commence to flee, the result is that the activities of each person reinforce the like belief of everyone else that what he fears will happen is happening. Thus, ordinary withdrawal can become panic flight.

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[1] Unpublished interview, NORC Disaster Project, Bakersfield, California earthquake, August 22, 1952.

The other contributory condition noted above may be a factor in individual as well as collective panic. That is, any crisis event which at the time proved highly dangerous to a number of people and some of whose devastating effects were directly experienced leaves the affected persons highly sensitised to suggestions of new but similar danger. Such sensitization after a harrowing danger experience often leads to preparations to flee upon any indication of a possible recurrence of the threat. As one resident of Brighton stated a few days after the widespread gas explosions:

> Every time we smell a little smoke or we think we smell a little gas or hear noises, such as probably everyday noises that we never noticed before—because everybody is on the alert now—we're all ready to get out of the house.[1]

However, it should be noted that such perceptual hypersensitivity, although it creates a predisposition to flee, is not in itself determinative of panic behavior (at least among collectivities). Whether flight will occur or not depends upon the interaction following the initiation of the crisis.[2]

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[1] Unpublished interview, NORC Disaster Project, Brighton, New York gas explosions, September 21, 1951.

[2] Since military panics have not been discussed above a word might be said about them here. There is a considerable body of literature especially in French and German sources on the subject. (See Bibliography.) However, the majority of this material would appear to have limited scientific value. In general, it is very speculative and highly abstract in nature, being supported by little, if any, empirical data. However, for one work that does cite specific instances of military panic in some detail see C. T. Lanham, "Panic," Infantry Journal, XLIV (1937), 301-308. For a recent and typical general statement on panic by military men see John Caldwell, Stephen Ransom and Jerome Sacks, "Group Panic and Other Mass Disruptive Reactions," U. S. Armed Forces Medical Journal, II (1951), 541-567.

Actual descriptions of military panics either by participants or eyewitnesses are difficult to find. See, however, the excellent first-hand accounts given in Jack Belden, Still Time to Die (New York: Harper & Brothers, 1943), esp., 141-146, 163-167. Most of the second-hand or generalised accounts that are available are of limited scientific usefulness, because of the inaccuracy and/or inadequacy of the materials.

Insofar as any statement can be made on the basis of the scanty reliable data, it would seem that military panics are the same in origin and development as panic in general. Consideration of the data suggests, however, the necessity of one pre-condition for the emergence of military panic. Normally, military groups function collectively and effectively as a matter of routine in the face of very extreme personal dangers to individual members. Only when there is an absence or breakdown of this normal military group solidarity, is the appearance of panic made possible. For a further consideration of this point see Quarantelli, op. cit., 110-120.

SUMMARY

The object of this study was the empirical establishment of some social-psychological generalizations concerning panic. A survey of the theoretical literature indicated that there existed little agreement or definite knowledge regarding the generic nature of or conditions under which panic arises. Consequently, this study attempted through a comparative and analytical examination of specific instances of the behavior to answer three basic questions: 1) What are the distinguishing characteristics of panic? 2) What are the different types of panic? and 3) What are the conditions associated with each of them and with panic in general? Answers to these questions were formulated primarily from the data gathered in the interviews collected by the Disaster Team of the National Opinion Research Center.

Nature of panic. On the basis of this data panic can be defined as an acute fear reaction marked by a loss of self-control which is followed by non-social and non-rational flight behavior. The one outstanding covert feature of the phenomenon is the acute fear reaction, that is, a strong emotional reaction subjectively experienced as an impulse to run from an impending danger. Panic participants are seized by fear of a specific object which is defined as involving an immediate and extreme threat to the self. The most prominent overt feature of the phenomenon is the flight behavior which, while not necessarily non-functional or maladaptive, always involves an attempt to remove oneself physically from a spatially designatable threatening location. The link between these two features lies in the fact that panic is marked by loss of self-control, that is, by unchecked fear being expressed in flight away from a supposed danger. Two other prominent features of this phenomenon are non-rational (rather than irrational) thought and non-social (rather than anti-social) behavior. The link between these two aspects is that panic participants do not weigh the social consequences of their non-goal directed flight and therefore are highly individualistic and self-centered in their actions with reference to one another. The only conscious thought being to remove oneself from the danger situation, there is an ignoring of the ordinary social norms and interactional patterns with a consequent breakdown in corporate action.

Types of panic. Three types of panic can be delineated, two of a collective and one of an individual nature. Collective panics are socially generated; they arise primarily as the result of interaction among the participants. The individual type of panic, on the other hand, is neither socially initiated, developed or sustained; its appearance is dependent on each person's independent perception of a physical threat. That is, a participant reacts solely in response to the attention-controlling danger object and directly on the basis of the flight impulse aroused by the fear of it.

The two kinds of collective panics differ somewhat in origin and development.

1. Precipitous panic originates in sudden crisis situations. As a result of perceptual interaction, a sense of great danger is rapidly communicated to all present. When some begin to flee this confirms the initial belief of danger, thus initiating new flights and reinforcing the fear of those already running.

2. Emergent panic, on the other hand, gradually develops out of a background of acute excitement and general social confusion. The large amount of verbal communication evoked in such progressive crisis situations leads to a relatively slow, spiraling, increase of tension and fear which is finally released in a panic flight. Despite these differences, however, both precipitous and emergent panic can co-exist in crisis situations intermixed with other types of behavior.

Conditions for panic. As for the conditions for panic two specific ones stand out rather sharply. One condition, unique to the phenomenon, is a sense of possibly being trapped and therefore suffering the consequences of a dangerous situation. This sense of potential entrapment is dependent on psychological rather than physical factors. The other necessary specific condition for panic is a feeling of helplessness in regard to coping with the threat. This helplessness has two components—impotency or powerlessness to bring the threat under control, and a sense of "aloneness" in acting to remove oneself to safety. In collective panics a sometime contributory condition is a previous group definition of a particular crisis situation as potentially panic provoking. Another sometime contributory condition present in all kinds of panic is a perceptual hypersensitivity produced by previous experiences with danger.

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