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A MODEL OF SOCIETY TO USE IN SYSTEMATIC ANALYSIS AND MANAGEMENT PLANNING FOR SOCIETIES UNDER STRESS: FURTHER DEVELOPMENT

Earl E. Hall

with research collaboration by
Freeman B. Hudson

May 1971

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13. ABSTRACT

This report describes further development of a systems model of society to be used as a tool in planning for societal recovery following nuclear attack. The basic elements of the system were presented in an earlier report, A Model of Society to Use in Systematic Analysis and Management Planning for Societies under Stress; the present report emphasizes the needs-systems-effort equations of the societal model and covers in detail the general systemic implications of specific human needs; implications for the consumer demand subsystem; implications for the institution-building subsystem; and general implications for recovery planning. The report concludes with a description of developments in the social sciences related to the potential of societal modeling.

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CHAPTER I

THE SYSTEMS MODEL OF SOCIETY AND POSTATTACK PLANNING: RATIONALE AND METHOD

Theoretical and Systems Foundations

This paper continues the analysis reported earlier in A Model of Society to Use in Systematic Analysis and Management Planning for Societies under Stress.[1] It endeavors to provide some further development of the model as a framework for dealing with problems of planning for recovery following nuclear attack. The work reported here is an effort to establish a mechanism for evaluating the adequacy of current plans, in social systemic terms, and for developing coordination among them.

Society As a System

The analysis presents society as the macro system. Production processes, development of technology, monetary management, law making, law interpreting, law enforcing, educational processes, processes of population change, health services delivery, welfare processes, recreation patterns and patterns for using leisure time, etc., are all subsystems within the major system. The analysis views the culture-society complex, i.e., that which has been portrayed as the societal model, as the historically created system that a people have developed to satisfy their needs. Thus, it is the needs of people that are central to the system. No subsystem or element of the system exists independently. All elements and subsystems

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[1] Earl E. Hall. A Model of Society to Use in Systematic Analysis and Management Planning for Societies under Stress (McLean, Va.: Human Sciences Research, Inc., 1969). AD-[illegible]

are derivations of people's needs. No system has ultimate validity except as it serves to satisfy needs.

Analyses of subsystems such as input-output economic analysis operate within implicit assumptions regarding the validity of the process they describe. Viewed as elements of a society and from the "functionalist" position suggested above, this assumption has validity. The existence and persistence of the subsystem in the society suggests that it must be performing this function. Viewed from the perspective of a stable on-going society, predictions about future states and future forms of a subsystem that are based on a high level of aggregation and extrapolations are reasonable. Such analysis assumes that the other subsystems supporting the particular subsystem being analyzed will continue to function in the future as they have in the past. In a stable, on-going society, this is a reasonable assumption.

If a subsystem is viewed from the perspective of major systemic disruption, this kind of assumption no longer holds. No subsystem has validity in and of itself. Its function is to satisfy needs and its ability to do this depends on the functioning of many subsystems of the system. The viability of postattack society rests on its ability to satisfy the needs of its people, but cannot be assured by reestablishing sybsystems in the image of their pre-disaster form. Viability can only be achieved by redeveloping subsystems with reference to the state of other societal subsystems--all related to the basic independent needs variables.

The development of trans- and postattack recovery planning could be based on the goal of rebuilding subsystems in the image of preattack subsystems. This is not an unreasonable point of departure for first-round considerations, but as a final position, it is not promising. This analysis is a step toward developing planning in the total systems context, i.e., with respect to other subsystem plans, for purposes of

remedying specific inadequacies. We will ask many more questions than we will answer. By asking the right questions, we expect to take an important step toward obtaining needed answers.

The Systems Model of Society: Utility and Limitations

The systems model of society and the discussion presented above are constructs taken from a body of developing knowledge where the conclusions seem to be indicated, but empirical evidence is not yet sufficently developed to say that the conclusions are beyond dispute. The conclusions used as the basic framework for this report are presented in the body of the report as "fact." The question can be reasonably asked--if our tool is of uncertain quality, why do we propose using it? The answer is simple: we need such a tool. The problem we deal with in civil defense and the problems of poverty, polarization of society, natural disaster, development of underdeveloped countries, etc., are here and now. We are becoming more and more aware that these are societal systems problems. For example, experience with the development and utilization of high yield grains for use by underdeveloped countries--termed the green revolution--has revealed that technological breakthroughs do not assure solutions to social problems. On the contrary, technological breakthroughs without consideration of societal system structure and functioning and without appropriate related planning can intensify social problems. Here, and in postattack planning, we deal with systems problems and we must have an appropriate tool: a systems description of society.

The systems model of society is certainly not yet nearly as fully developed as current theory and evidence permit. A relatively modest effort can be expected to expand the model considerably even though a massive effort is indicated if the model is to be developed into the ideal tool desired. The current report is an effort to develop means by which

the model, coupled with other social science knowledge, can be used, as well as to describe the limitations for its use in the present state of its development.

The Central Role of Needs Theory in the Analysis

Needs and the Social System

The diagram of society as a system, developed for the preceding report, shows "people" as the central element of the system. It is the needs of people that impose performance demands on the system and it is the motives of people that determine how much and what quality of effort will be made available to the system. These motives further determine when and where effort will be made available. It is this infusion of human effort into the system that gives the system life. Needs determine demand. Human effort activates the system in such ways as to meet the demands. One basic equation of the system is the equation that relates effort to needs. The system is viable when human effort is made use of in such ways as to substantially meet human needs.

The societal system would have little import for people if each individual's efforts were directly related to his own needs satisfaction. But this is not the case. Society is, by its very nature, an implicitly cooperative venture where the means for direct satisfaction of many of the needs of Person A are provided as a result of the effort of Persons B, C, D, E, etc., while Person A's effort largely goes toward satisfaction of some needs of other people. The division of labor that produces this result also is the basis for a much higher standard of living than that any single individual working independently of others could produce for himself. This is particularly obvious when we consider the production of consumer goods in the society. Division of labor is not only significant for manufacturing

processes, it pervades government, education, administration of justice, recreation and leisure time activities, national defense and even religion. While it is most obvious in urban industrial societies, division of labor pervades all societies. Practically all activities engaged in by persons in a society involve someone else who plays a complementary role in a predictable way. In fact, the very existence of a personality is dependent on social process and the most elementary forms of learning involve learning to play roles that are complementary to the role played by other significant people in one's life.[2]

Society provides the means of accounting for the effort--occupational role playing--that Person A has put into making the system work in terms of his claims on system output. The monetary system, combined with the market system, is the social mechanism that provides the means for exercising claims on the system. This is not the only system that facilitates this, but it is of paramount importance to system functioning. Closely coupled with the monetary system is the system for defining property rights in the society. The customs and laws that define the production process define the ways in which exercising of effort can provide one with participatory or exclusive ownership and control rights over processed goods. In defining the ways in which money and property are owned, manipulated, and exchanged, society is involved in providing means for satisfactions of people's needs. The rights that different social groups have with regard to having their needs satisfied and the degree of freedom and opportunity each group has a right to in seeking this satisfaction--the basic value orientation of the society--constitute the basis upon which governmental processes define monetary and property rules and laws.

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[2]For one developed discussion of this point, see George H. Meade, Mind, Self and Society. C. W. Morris (ed.) (Chicago, Ill.: University of Chicago Press, 1934).

Values, Needs, and Social Problems

It is very important, as we consider society after a major disaster (or as we consider major social problems), to understand that every aspect of our social system is relative to needs and to our values. The tendency to perceive forms of social organization as "right," or necessary in and of themselves, is socially dangerous. It puts us in the position of valuing means in and for themselves, although they may be in conflict with the ends they were developed to serve. Yet this tendency is also functional in that it prevents us from casting over our established systems in search of some unachievable level of perfection.

The human situation in society is paradoxical. We have the ability to imagine, in broad general terms, a society that would incorporate all of our basic values and satisfy our needs. Yet we do not have the knowledge necessary for building the societal system to achieve this. Thus, in actuality, we always have--in terms of our values--certain social problems that we continue to try to solve. Our basic need for security in stable societal expectations makes us reluctant to change the system that exists, while our values push us to consider and seek change. Needs for security tend to be stronger than needs for value actualization and change comes haltingly and slowly. This tendency may be of crucial importance when the structure of resources and communications is substantially altered. Retaining those systems that were developed in a different world, and which were perceived as "right" in and for themselves, could be a major source of frustration in the satisfaction of basic postattack needs. The only reasonable approach is to try to adjust preestablished systems in such a way that they will serve needs in the new conditions of resources and communications.

Relationship of the Systems Model to Postattack Planning

To reiterate briefly the discussion contained in the introduction, the indicated approach to considerations of planning for--or evaluating plans for--managing a society in the wake of a nuclear attack is to first identify needs. Subsequently, we can identify the societal subsystems that provide satisfactions for these needs in the preattack world, determine the systemic relationships among the subsystems and their dependence on resources and communications, identify how these systemic relationships, resources, and communications might be upset by nuclear attacks, and determine what modifications of preattack subsystems would serve to satisfy postattack needs within the framework of postattack resources and communications, while allowing those subsystems to bear a supportive systemic relationship to each other.

Needs, as mentioned above, are the sources of the demands that people make of their social system. As they develop within a complex of values and beliefs, these values and beliefs serve as channels for directing needs toward some means of satisfaction and excluding other means. As we develop subsystems for providing these acceptable means of satisfaction, the subsystems take on a believed-in validity that further constricts means of satisfying needs. If we desire to make social changes or to reconstitute society after a societal disaster, it is necessary to go beyond subsystems to the needs they serve as we consider rebuilding subsystems. Lacking the ability to do this, we are limited to rebuilding what we had before (regardless of the new context) or to intuitively-guided experimentation. But needs do not just serve as a basis for demands imposed on the society: they also serve as the basis for individual action. People act--exercise effort--because they have unfulfilled needs and because they believe that the act will contribute to need fulfillment. Human effort is the ingredient that makes the system function. In order to understand the quantity and

quality of human effort available for operating the system, it is essential to understand needs. If we want to direct this effort in such ways as to most effectively provide for needs satisfaction we need to understand the needs-beliefs-motives relationship. The basic requirement for guiding and managing a society is to achieve the best available balance between effort utilization and need satisfaction. It is the division of labor phenomena that makes this a difficult management problem.

A person is continuously aware of his needs. From early childhood he learns the ways of his society and they become a part of his personality. Almost as automatically as he is aware of his needs, he is aware of the socially approved means for seeking satisfaction of his needs. These means generally involve some direct action on his part and require him to have some auxiliary means that are the products of prior actions. The satisfaction of needs, therefore, requires both the immediate direct action and the prior execution of action that is a social derivation of the needs.

Human needs do have some quality of hierarchical relationship to each other, as discussed later, and there tends to be a saturation effect associated with means of satisfaction such that, at some point of increasingly higher levels of satisfaction, the marginal utility of an additional unit of satisfaction diminishes. Even this relationship may be situational. Means of satisfaction may be sought and considered sufficient, to some degree, in proportion to their availability. Thus, we may reasonably argue that the requirements associated with needs satisfaction and, to some degree, the needs themselves, are dependent on the environmental situation.

The problems associated with efforts to develop an inclusive listing of human needs include the problem of type and the problem of level

of generality. The principal type categories are biological, psychological and social. If the concept "needs" is limited strictly to the material necessities required for the survival of the organism it is simpler to deal with than if it includes personality needs. However, even in the simpler case there are problems. The fundamental organic needs that first come to mind are, of course, needs for food and water. Without food and water, the organism cannot survive. We generally neglect the similarly elemental need for oxygen in such discussions, probably because oxygen is not generally a scarce commodity. However, food and water (and oxygen) are not uniquely necessary to survival. Some minimum degree of environmental warmth or coolness is also necessary to survival. Below certain temperatures the body ceases to function and above certain temperatures the human organism also ceases to function or is destroyed. This typically is translated into a need for clothing and shelter. But, in the process, we have changed the frame of reference somewhat. Food and water (and oxygen) are absolutely needed. Clothing and shelter are not. In the latter case, temperature maintenance is the absolute need. Clothing and shelter are simply the means found useful in most climates for achieving temperature maintenance.

This kind of discussion becomes particularly complex when personality needs, rather than organic needs, are considered. There is still some debate over what constitutes the minimum requirements for personality emergence and development. Thus, there is not full agreement, even in principle, as to what are basic human personality needs.

Any attempt to resolve the problems associated with developing a definitive listing of needs here would be most unprofitable. What we need is an operational list of needs that is substantially inclusive. We can produce such a list as an eclectic summation of contemporary literature.

An operationally usable listing that draws on a body of relevant literature gives us a point of departure for a basic analysis. Further development of the needs list will allow for a refinement of analysis.

CHAPTER II

DEVELOPMENT OF THE NEEDS-SYSTEMS-EFFORT EQUATIONS

Terms of the Equations

The list presented below is not necessarily exhaustive but it covers a substantial portion of the total range of human needs. The needs are derivative of both the biology of man and of his condition as a social animal with a personality. The attempt is made to list the needs that are common to all men without any assurance that the list is not influenced by our own social conditioning. In one sense, this problem is minimal here, since the analysis is directed only toward our own society.

All humans need oxygen (N_o) and also need sleep (N_s). Since the supply of oxygen can be treated as unlimited and universally available we will not concern ourselves further with it in this analysis. Individual needs for sleep may vary and for short periods of time satisfaction can be foregone, but this is limited. We will make the simplifying assumption that all men need and, on the average, get eight (8) hours of sleep a day and that having said this, we have dealt with the sleep need to the extent necessary.

The other needs require satisfactions that involve more complex considerations. They are:

N_1 - Food

N_2 - Water

N_3 - Protection from threats in the natural environment

- Temperature Maintenance
- Clothing
- Shelter

- Health Preservation
  - Medical Care
    - Preventive
    - Treatment
  - Sanitation

N_4 - Primary Group Support

- Support for Adult Personality
- Socialization, Protection and Support for Children
- Privacy

N_5 - Status

N_6 - Societal Security

N_7 - Tension Release

N_8 - Knowledge

N_9 - Value-Related Personal Satisfaction

N_{10} - Aesthetic Experience

N_{11} - Excitement.

This list of needs is constructed from the perspective of how society serves man. From this we develop an analysis of societal elements and subsystems to be used in our systems analysis of society. Thus, it is an operationally oriented listing that is intended to serve one particular analytic operation. Yet a systems model of society is an attempt at a precise description of major aspects of society. This requires that various subsystems and elements of the societal system be described precisely. Needs are a central element of what we have called the "people" subsystem--itself the central subsystem and source of energy (human effort) for the societal system. If the model is to have precision, the relationships among needs must be precisely described.

In the earlier report in this series, this subject was introduced within the framework of an equation for the allocation of disposable man hours of effort. We took note of the fact that each person has available to

him exactly 168 hours a week. We took man's need for sleep into consideration by assuming that on the average, every man needs and gets eight hours of sleep a day. By combining the time required to serve food needs, as socially defined in our society, and some functionally autonomous health and grooming habits that we believe would persist in a postattack world, it was assumed the personal maintenance would absorb three hours a day. With these simplifying assumptions, we concluded that, on the average, every person has 91 hours a week of disposable effort available to satisfy other needs. Some operational assumptions were made about the kinds of effort and level of effort that might be necessary for satisfying these needs. The key question dealt with was the likelihood of there being sufficient available man hours of effective effort for occupational role playing to maintain a viable society.

A very crude analysis suggested that the adequacy of effort for a viable society might be marginal. Our concern here is with the development of plans most likely to enhance use of whatever effort we have. It is also a concern with what is demanded by people of society as well as what can be supplied. There are a great many complexities in the relationships between needs, means of satisfaction and effort. We begin our attempt to make precise statements about these relationships with some simplified generalizations. The three terms that will be used as the primary variables in the needs element of the people subsystem equations are needs, satisfiers, and effort. The term N will be used to designate a particular need.

A need (N) is a lack of something--a description of a condition stimulating effort to change a person's state of being. The condition of being in need can be thought of as a state of tension or disequilibrium. The numerical value of the term N will stand for the amount of tension or action motivation that is a consequence of a person's immediate state of

need. "Need" has an instantaneous quality about it. Needs are not satisfied once and for all, but have the characteristics of requiring periodic satisfaction. A need can be satisfied to the point that the marginal utility of a unit of satisfier is zero and then, after a short period of time, the need will return. This periodicity varies among needs, but analysis is simplified by assuming that the periodicity of each need is a daily phenomenon. This makes it possible to deal with the satisfaction requirements per day of each need. In making this assumption, we treat each need as if it returned overnight, every night, to its maximum level and thus produced, every morning, a tension or action motivation.

The term $\bar{N}$ is used to stand for this nominal maximum need level. This assumption and definition is only an operational statement of need intensity in a state of societal equilibrium. It does not account for the full range of need intensity. It assumes that during each day there is enough need satisfaction such that there is no build-up of need related tensions over a period of time. For example, considering the food need, this kind of assumption would deal with the food-related motivated effort that would be daily manifest under conditions where a nominally adequate diet was obtainable and obtained. It would not deal with the cumulative effects of semi-starvation. In the case of food, there is evidence which shows that semi-starvation changes the characteristics of the response to the food need in such a way that increases agitative effort up to the point where body weight is reduced about twenty percent and thereafter, begins to produce lethargy. At the same time, actual work performance drops almost linearly with decreases in body weight, reaching zero at fifty percent loss of body weight.[3]

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[3] FFHC Basic Study No. 5, "Nutrition and Working Efficiency" (Rome, Italy: Food and Agriculture Organization of the United Nations, 1962), p. 20.

Neither the term "need" nor "tension" (derived from need) refer to things we have been able to measure directly. They refer to things that we believe are real--given directly in human experience--but things that we have not developed a means for quantifying. We presume that in all cases of need there are "satisfiers." The term "satisfier" will be used to describe the product that produces satisfaction. The "product" is not necessarily material. It may be goods; it may be services; and it may be, for instance, hours of intense companionship. Other forms of the "product" will be noted as the analysis develops. The important characteristic that all "products" have in common is that they can be expressed quantitatively. One of the basic expressions we will develop is the expression that relates "units" of need to units of satisfier.

The term "effort" basically refers to man hours of goal-directed activity. In the earlier analysis we took note of the fact that effort varies both in quality and quantity. Effort is important in terms of its contribution to the production of satisfiers. Satisfiers themselves appear in two different, not entirely identical, accounts in the societal system. One account is the typical individual's account. A person acquires satisfiers that directly or indirectly help reduce his state of need. The other account pertains to the societal marketplace, where those satisfiers produced in the production process and made available to people with the requisite purchasing power are summed by type. In the earlier analysis we focused on the latter account; present focus is on the former. We are concerned with the effort that provides a typical man of one group with the means to satisfy his needs. This includes effort expended to gain means to participate in the market. We will not, at this time, concern ourselves with whether or not the sum of men's productive effort produces the goods and services for the market in sufficient supply such that having the means to participate in the market yields the desired purchases. We will first assume that it does and then

return to this very important question later. The relevant effort form is, therefore, man hours that contribute to the obtaining of satisfiers if the market supply of satisfiers is at least marginally adequate. The expression that we develop is the expression of the relationship of man hours of effort to the development of needed satisfiers.

We make a simplifying assumption about effort quality similar to that for the maximum need (N). That is to say, society is at least marginally viable and that the quality of effort is not reduced by societal conditions. The terms used in the equations are as follows:

N	=	need
s	=	satisfier
e	=	effort
$\overline{N}$	=	maximum daily anticipated or experienced need
$\overline{s}$	=	quantity of satisfiers required to reduce N to zero
1,2,...9,10	=	subscripts identifying a variable as related to one of the specific needs listed in the needs list.
a	=	power of s that defines the relationship of N to s in a basic N-s equation (an empirically derived coefficient)
b	=	power of s that defines the relationship of e to s in a basic e-s equation (an empirically derived coefficient)
C	=	transfer function between effort (e) and satisfier (s) in the basic e-s equation (empirically derived coefficient that reflects the societal state as it bears on the particular need under consideration).
K	=	equilibrium coefficient in the basic N-s equation; a function of $\overline{N}$ and $\overline{s}$.

Basic Equations and Diagrammatic Illustrations

The basic equation that we hypothesize to express the relationship between any one need and its composite satisfiers is:

$$N + s^a = K$$

This equation states that as the quantity of satisfiers increases, the quantity of need decreases. In this equation $\bar{N} = K$ and $\bar{s} = \sqrt[a]{K}$. Some theoretical flexibility in determining $\bar{N}$ and $\bar{s}$ is created by the choices the analyst has in developing the measuring scales for N and s. The term "a" permits the "tuning" of this equation to fit a body of empirical data. This term is one of the key non-disaster related socio-psychological factors that must be determined if the model is to be useful for planning or evaluating postattack plans or for dealing with any social problems.[4]

The basic equation that we hypothesize to express the relationship between any one composite of satisfiers and the effort required to produce it is:

$$e = Cs^b$$

This equation states that the amount of satisfier of the type that is produced is a positive function of the effort that is expended in seeking the satisfier. When e is zero, s is zero. The term b allows for the possibility that the amount of effort required to produce a unit of satisfier may, in some instances, become greater or lesser as a function of the amount of satisfier already produced. The term C is the basic transfer function between effort and satisfier. It is the term that characterizes the process in which the satisfiers are developed. In most instances, this process is a subsystem of the societal system and C is the transfer function across an element or subsystem of the societal system. Thus, C reflects the state of a portion

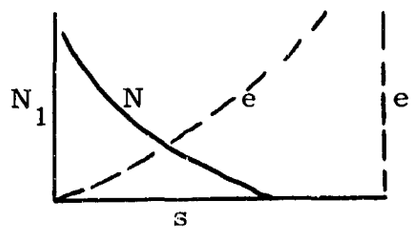
[4] See Chapter V for additional discussion of these factors.

of the societal system. In the production subsystem C might be thought of as the production function. Both b and C represent key non-disaster related societal factors that are important to an analysis of societal process. The family of coefficients designated C is likely to change with societal damage or other forms of societal change. The terms incorporated in C are not simple expressions. They are susceptible to empirical determination, in principle, and may be determinable, in most instances, in a very direct way. Nevertheless, they each subsume a complex of societal relationships and will generally emerge out of fairly detailed analysis of a subsystem model.

The basic relationship between need, satisfiers and effort can be expressed in diagrammatic, as well as equation, form. The diagram resembles the supply-demand diagram familiar to all students of economics. It has some similar implications but there are also significant differences. We can express the general equations:

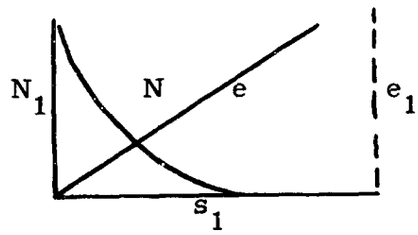
$$N - s^a = K \quad \text{and} \quad e = Cs^b$$

in the following diagram:



The shape of the curves will vary with coefficients a and b. In the illustration, both a and b are greater than one and positive. This means that need satisfaction tends to saturate as the supply of satisfier increases and that expended effort per unit of satisfier increases as the amount of satisfier produced increases. It is quite likely that the need for primary group experience and the satisfaction of the need produced by intense personal interaction bear this relationship to each other.

The needs curve for food is basically similar to the needs curve diagrammed above, but the effort curve probably comes close to being a straight line, such as illustrated below:



with the equations expressed in the following manner:

$$N_1 + s_1{}^a 1 = K_1 \quad \text{and} \quad e_1 = Cs_1$$

We presume that these two basic graphic forms account for the needs, satisfiers, effort relationships of all needs within the limits of societal viability. We recognize that needs themselves can, and in some cases probably must, be broken down into subdivisions. It is also recognized that satisfiers come in composite "packages" and that it is a gross over-simplification to discuss the unit of satisfier that serves a particular need. Effort also comes in many different forms and qualities; several different types of effort must typically be exerted and consolidated to produce a typical unit of satisfier. All of this is buried in the simple equations we have presented above and will use below. The equations thus developed constitute a base from which more detailed and sophisticated analyses can be formulated.

In dealing with trans- and postattack phenomena, we are primarily concerned with short-term societal viability, as defined in terms of Needs 1 through 7. We have discussed above the condition where needs are sufficiently satisfied each day such that there is not a residual need-produced tension that accumulates day after day. Society is defined as minimally viable when Needs 1 through 7 are daily met at this level. This does not presume that the needs are fully satisfied each day or at any given point. It seems

quite likely that a desire for additional satisfaction one day will not necessarily result in an accumulation of tension into the next day. There is no substantial body of organized empirical evidence to sustain this proposition and we certainly cannot, at this time, assign a numerical value to the non-cumulative level of need satisfaction. We do believe that the substantial body of random data accumulated within social science can provide a base for developing some qualitative estimates in this area. A few social scientists have addressed themselves to such efforts and have produced promising results.[5]

The definition of viability proposed above leads to a corollary theory concerning loss of viability and societal upheaval. We presume that one, several, or all of the basic needs can be in a condition of lacking basic daily satisfaction and of producing cumulative tension for a group of people in the society. We hypothesize that cumulative tension of this type does not lead to further productive effort but leads to societal agitation. Such agitation calls for responsive effort on the part of other groups in the society to contain the agitation and/or to develop means for providing the requisite satisfiers to the agitators. Further, the more intense these cumulative tensions and the greater the rate of accumulation, the more intense the motivation to agitate. Intense agitation motivation can only be contained, in the immediate circumstance, by intensive threat of dramatic reprisal. Thus, when a society sinks below the level of viability for a group of its people it must have the effort available from other groups to contain the agitative efforts of those experiencing accumulating tensions. If we should find ourselves drifting into this state of polarization in a postattack

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[5] See particularly the works of Otis Dudley Duncan, for example. Duncan has been very effective in showing how quantitative analysis can be used to correct qualitative theory. Example: O. D. Duncan, "Inheritance of Poverty or Inheritance of Race?" in D. P. Moynihan (ed.), On Understanding Poverty (New York: Basic Books, Inc., 1969).

situation, we would have already lost a precious major value. If some people who were particularly attracted to this value had surplus effort to expend, they would probably, responding to Need 9, give this energy to efforts to change society and/or to support the agitators. If the reason for the agitation were to be found in limitations of total available effort, agitation would only aggravate this condition and societal structure would be in double jeopardy. The importance of avoiding this condition is thus strongly indicated.[6]

The current discussion of developing social indicators for assessing the state of our society might be informed by this discussion. If our definition of viability has validity, it suggests that quality of American life can best be indicated by the level of basic needs satisfaction in each major group in the society and by the degree to which society provides group members the opportunity to devote effort toward satisfying Needs 8, 9, 10, and 11. An elaboration of our analysis in the direction of developing a "gross national value (GNV) and a group-by-group value accounting system seems to be directly achievable in these terms and might be a useful by-product of this civil defense study.

The concept we wish to express can be illustrated diagrammatically as shown on page 22. While the graphs do not have units assigned to either ordinates or abscissae, the form of each curve has significance and was deliberately chosen to represent a hypothesis about the N-s-e relationship of the particular need. The variables s and e in each diagram are not necessarily represented in the same scale as those of any other diagram. This is particularly true of the e term, which is always measured in man-hours, but the scales of the seven different diagrams are not such that the unit of length in each represents the same number of man-hours. The point

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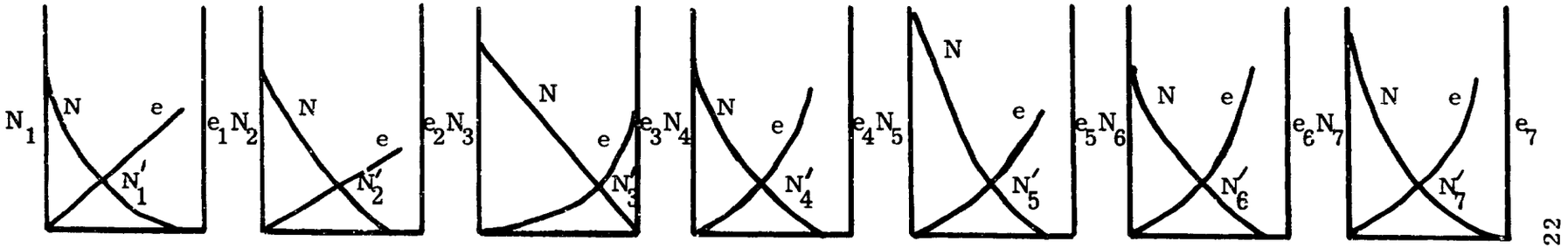
[6] Further discussion of this theory is presented in Chapter IV.

Figure 1.

Minimum Societal Viability



s_1 s_2 s_3 s_4 s_5 s_6 s_7

$N_1 + s_1^{a_1} = K_1$ $N_2 + s_2^{a_2} = K_2$ $N_3 + s_3 = K_3$ $N_4 + s_4^{a_4} = K_4$ $N_5 + s_5^{a_5} = K_5$ $N_6 + s_6^{a_6} = K_6$ $N_7 + s_7^{a_7} = K_7$

$e_1 = C_1 s_1$ $e_2 = C_2 s_2$ $e_3 = C_3 s_3^{b_3}$ $e_4 = C_4 s_4^{b_4}$ $e_5 = C_5 s_5^{b_5}$ $e_6 = C_6 s_6^{b_6}$ $e_7 = C_7 s_7^{b_7}$

Intercept at $N'_1 = N'_2 = N'_3 = N'_4 = N'_5 = N'_6 = N'_7$

$$7\,(e'_1 + e'_2 + e'_3 + e'_4 + e'_5 + e'_6 + e'_7) \leqq 91 \text{ hrs/wk}$$

of commonality in all seven diagrams is that the N and e curves of each intersect at the level of N (N') are just low enough to assure that there is no residual accumulation of need-related tension day after day. The common height of these intercepts (N) in the diagram suggests that need tension can be, and is, measured on a common scale with this point as the basis of reference. The expression stating that the sum of the efforts necessary to provide these minimum satisfactions is less than or equal to 91 takes account of the previously established proposition that each person has 91 disposable hours per week. The multiplier seven (7) converts the summation of daily efforts to this weekly basis. We hypothesize that whatever effort may be left over after the basic minimal needs are satisfied is distributed in the seeking of further satisfiers for all eleven needs.

It is useful to reiterate that we are dealing with the account of a typical group member concerned with satisfying his own needs. Some of the effort expended in seeking satisfiers contributes to the societal process through the production of goods and services that are made available in the consumer goods market to serve as need satisfiers. However, a portion of the effort is expended in the direct processes of obtaining immediate satisfiers and does not contribute to the societal process of production. Since goods and services are important satisfiers for several needs, it is important that society develop a management system such that sufficient effort goes to producing essential satisfiers in the production process to meet the needs of people. It remains equally important that society be so organized that the other basic needs can be met. Some needs, such as Need 6, require elements of satisfiers whose significance is derived from the total supply of available satisfiers. This total level of available satisfiers is known only to the satisfaction seeker if the societal system of information and communication is working effectively. Viability is not a function of all groups getting the same satisfiers, but it is "ideally" a function of all groups

being basically satisfied. People who do not perceive the societal significance of some of the satisfiers available to them, and their group, may consume a good deal more than is marginally useful to them and, at the same time, contribute to the falling of other groups below the N' level and into states of agitation. It is of particular importance, as we will discuss below, that this analysis be applied on a group-by-group basis. This type of analysis is reduced to a meaningless exercise in logic if all people in the society are treated alike; this approach fails to take society's group structure into account.

This mathematized analysis is a framework designed to give some implications of precision and some order to the following discussion. It is not developed as adequately, nor stated as simply as is ultimately desirable. Time and funds do not permit either refinement now. It is intended to suggest a general frame of reference for the reader. The discussion continues with a more concrete focusing on needs and the functioning of the societal system.

CHAPTER III

SYSTEMIC IMPLICATIONS OF SPECIFIC NEEDS

The framework developed in the preceding chapter determines the particular approach to analyzing the content material of our own society's functioning. Needs are taken as given--as essentially absolute; however, this absolute character of need is true only at the most penetrating level of analysis, the level of dealing with the nature of man. Since social scientists have not achieved adequate analysis at this level, our definition of needs is tinged with the processes through which socialization in a particular society has channeled these needs. This implies a tendency to view needs in terms of socially defined satisfiers, rather than in terms of some more basic quality imbedded in the fundamental nature of man. The fact that needs are manifest in and by personalities, and that personalities can only be developed in society, adds another degree of social relativity to this discussion of needs. This is particularly obvious when we consider such needs as tension release and status; much of the tension that a man must have opportunity to release is a product of the complexity and value structure of the society in which he lives. Status, or sense of place in society, is an absolute need of man, but symbols of status are all socially defined and the particular group of symbols he <u>needs</u> to associate himself with are a product of his group identification and social history pattern in the society.

In this chapter we will follow a specific format in dealing with each need. First, we will discuss the need. Then we will try to identify the need satisfiers. Following this, we will try to determine in quantitative terms, what amount of satisfiers is required to meet the conditions of preventing accumulation of need-related tensions over a period of days

(minimum societal viability). We will then try to determine and state how satisfier type and quantity requirements vary for major different social groups.

When this problem of defining satisfiers is dealt with we will proceed to try to determine what forms of effort are typically required for obtaining these satisfiers. Effort will be identified in terms of direct effort, that produces satisfiers, and indirect effort, that produces means used in direct efforts to gain satisfiers. Differential opportunities for typical members of different social groups for engaging in these efforts will be noted.

After we have identified the forms of effort that produce satisfiers for a need we will proceed to note the various societal elements and subsystems within which this effort is exerted and the major supportive societal elements and subsystems that are primary for producing satisfiers for the need.

Finally, we will consider how these elements and subsystems might be damaged by nuclear attack and what the consequences might be for securing satisfiers.

N_1 - Food

Food can be defined either in physiological terms of what the body can ingest, or in cultural terms referring to the subset within the first definition that is believed to constitute "food" by the people of a society. Much work has been done on minimal food requirements; we will take particular note of the planning work done by the U.S. Department of Health, Education and Welfare and elaborated on by the Stanford Research Institute,

culminating recently in a highly relevant SRI report.[7] From the standpoint of quantifying need and need satisfiers, we can treat this listing as tentatively definitive of the minimum viability requirements.

The effort forms required for need satisfaction typically involve both direct and indirect effort. The direct effort involves, for the vast majority of Americans, shopping, preparation, serving and consumption. The primary form of indirect effort is expended in gaining the means needed to purchase food in the market.

If food needs are to be satisfied within conditions of minimum viability and without having to learn new roles and reorganize significant direct and indirectly related groups and organizations, there are a number of societal subsystem requirements. The SRI report[8] notes eleven states of a typical flow diagram from raw materials to consumption. In our earlier report, we offer a somewhat more complex partial production subsystems diagram suggesting the systemic interdependence, as well as the linear flow requirements, for getting agricultural products to consumers.[9] Both diagrams emphasize the fact that substantially more than the cultivating or husbandry of foodstuffs is involved in feeding an urban industrial population. Included in the process is a great deal of transportation, some intermediate and final processing and well-organized warehousing and distribution. While only about five percent of our work force is engaged in growing and husbanding our foodstuff, nearly 20 percent of our work force is involved directly or indirectly in the process of satisfying our food needs.

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[7] Donald E. Clark, Jr. Techniques for Development of Postattack Recovery Management (Menlo Park, Calif.: Stanford Research Institute, November 1969).

[8] Ibid., p. 21.

[9] Hall, op. cit., p. 26.

The partial diagram of the production network from the earlier report suggests what basic systemic relationships are involved in supplying foodstuffs to consumers. Not least in importance in making this system function is a well-established and managed production and distribution process. As suggested in our diagram, labor (occupational role-playing effort) is an important element at each stage in this process and management is a very important occupational role that has to be played. Managing an element of the system requires management information from other elements of the system, and a complex and reasonably stable communication system exists in our society for supplying this information. Nevertheless, even in stable times, achieving successful management of elements of the subsystem is a somewhat uncertain practice with occasional glaring inadequacies.

In order that people be able to express their demand for food in a market in a systematic and functional way, they must have money, and the money must have stable value implications for the people who receive it as well as for the people who offer it. This means that the monetary subsystem must be functioning. The source of money to satisfy requirements for expressing demand is essentially wages. Wages serve to motivate people to give occupational role playing effort in support of the production subsystem; wages also serve as a means to use in exercising demand on the market where the output of the production subsystem is made available. We have a difficult enough time managing our monetary system in normal times, as is demonstrated by current problems of inflation; it would be unrealistic to suggest that this is an easily managed problem in the post-attack world. The basic problem is to keep the wages (total income as treated in the broader sense) of people who contribute occupational role playing effort balanced against the prices of goods and services offered in the marketplace. Traditionally, we have dealt with this problem in gross

terms. It can be somewhat more effectively dealt with on a group-specific basis. It is, of course, not only important that there be a general balance between wages and prices, but it is also important that the various groups of people, beginning with social classes and further breaking these down according to life style expectations, receive wages that will support their reasonable expectations for life style maintenance and that they have products available to them in the market of the appropriate types and prices.

This has been the function that the free market system, both in the labor market sense and in the consumer goods market sense, has been expected to serve. Throughout this nation's history, we have tried to establish rules of property rights, worker rights, marketing practices and usery limitations that would serve this purpose with a minimum of interference with the individual's free pursuit of opportunity and free expression of desires. The rules and laws established have been based on our analysis of the situation. The analysis, in gross terms, has never been entirely adequate. We suggest that the efforts to expand this analysis to a group-by-group analysis, which is introduced below (Chapter IV), may be useful in developing plans for managing the monetary system both now and in a postattack situation.

The need for food is translated by cultural norms and societal structure into a need to shop for food, which imposes a demand for retail outlets for food on societal structure. The occupational roles involved in the processes for producing food, processing food, transporting food, warehousing food and retailing food, all are called into being by the demand for food as interpreted within cultural norms. The price paid for food by all users must include wages in terms of direct and indirect costs for all persons engaged in this process. Indirect costs such as capital replacement can be deferred only if provisions are made for catching up at some later date. Indirect demand leads to the dissemination of consumer demand throughout the societal production system.

In preattack times this process operates in a fairly stable manner. In the postattack situation much damage will have been incurred by the physical elements of the system and many personnel who normally operate the system will be either killed or disabled. Furthermore, centers of residential population will have been shifted in such a way that preattack retail outlets will not necessarily be advantageously located.

Preattack planning should concentrate on enabling the free market system of retail food distribution to be reestablished. This does not preclude postattack food rationing through non-market distribution centers or postattack communal feeding as interim measures. It must be recognized that such alternative food distribution systems require organization and staffing and will tend to become institutionalized if they are successfully established. Trans-attack planning must include steps to establish such systems, paralleling market distribution in the less affected areas, staffing such systems, motivating the staff to concentrate on system supportive goals, and the gradual disestablishment of such systems as society reverts to a market economy.

Discussions above and elsewhere in this work have suggested that choice with respect to food, and familial privacy with regard to its consumption, may have significant motivational consequences for occupational role playing. This suggests that the planned disestablishment of rationing on a per capita basis and of communal feeding systems is an important aspect of establishing a rationing system. It further suggests that this should be coordinated with plans to reestablish a retail free market for food.

All of the above considerations have implications for the monetary system and how currency reform is to be accomplished. Wages that can be used to purchase food and that are needed if one is to secure food have

a different motivational significance than wages that gain one's entry into a standardized and homogenized feeding process. Wages have even less significance if they are irrelevant to the problem of securing food. If the amount of transaction money available for use in securing food--this amount being a proportion of total wages (around 25 percent in the preattack situation)--is significantly more than or less than the amount that will provide for need satisfactions and clear the food supply offered at established prices, some significant price adjustments will follow. Since price typically has a consequence for production rates and for wages, a severe imbalance can destabilize the price wage structure. Monetary policy must be built on the best possible recognition and consideration of the opportunities and problems associated with market exchange and wage policy in the postattack world.

Given wages and retail outlets, consumers will shop for food. In contemporary American society shopping time is probably used as an alternative to money resources for securing food quality. The marketing system that uses price flexibility in the form of sales and loss leaders along with highly variegated forms and sizes of packaging encourages this. Lower income people probably spend more time engaging in selective shopping than do higher income people (with uncertain cost-effectiveness). Standardization of pricing and packaging for the postattack situation would reduce this necessity.

Shopping time consumes a significant amount of disposable time and shopping skills vary from group to group. The division of labor between the sexes becomes a significant concern when shopping time is being considered. We need to establish the number here somewhat more securely than guesswork can do. Within the current time frame we can only estimate that food shopping time consumes an average of one and one-half hours a day for middle-class females and about two hours a week (on

the average) for middle-class males. We further postulate that this increases linearly to two and one-half hours a day and four hours a week, respectively, for lower-class families and decreases to one hour per day and zero hours per week, respectively, for upper-class families.

In the postattack world it is likely that, on the average, retail centers will be somewhat less accessible than in the preattack world and that this will increase shopping time somewhat. Due to probable inadequacies in refrigeration and transportation, further increases can be anticipated. If the alternative food supply systems of rationing on an equivalent per-capita basis and some mass feeding are established, it seems reasonable to assume that queuing and adjustment of schedules will be such as to involve a time expenditure at least equivalent to shopping time for women and perhaps more so for men.

While there will be a systematic bias toward continuing the preattack diet mix, due to the established habits and attitudes of the consumer population and the food suppliers, certain aspects of the preattack agricultural and food reserve situation will have a bearing on this mix. In the preattack situation, our society produces an annual surplus of grains and maintains a stored surplus of grain. While it is quite possible that this grain could provide the major postattack resource for needed foreign exchange, it seems reasonably certain that in the event of food shortages from other sources, the grain reserve would be used for feeding of the survivors. Thus, any shifting away from a traditional mix of foodstuffs in the postattack situation would probably be in the direction of a more grain-intensive mix. A recent report for OCD,[10] suggests that the flour milling

[10]Elwyn M. Bull and Bernard Sobin. Measurement of Critical Production Capacities for Models of the Postattack Economy (McLean, Va.: Research Analysis Corporation, February 1970), p. 33.

industry in this country has a 1.294 ratio of emergency to normal days capability or a 29.4 percent reserve capacity. Feed mills and even cement plants are convertible to edible grain milling and, under these circumstances, it seems likely that the capital facilities for converting grain to flour are available. Since there are only 113,000 (ref. 1963 Census of Manufacturers) employees of grain mills in the United States, it appears that the possibility exists that they might be disproportionately lost (or not lost) in the attack. Skill substitution contingency planning might be wise here.

Even with grain flour available in a widespread distribution framework, the problem remains of converting the flour to baked goods for consumption. The information reported in the Research Analysis Corporation report[11] that adults in the U.S. could survive on a pound of bread and a quart of water with minimum dietary needs met--for a period of one month--still leaves the problem of converting flour to bread to be considered. The baking industry will be very important for survival. American housewives are probably largely unfamiliar with bread-baking processes. The possibility of relying on them for this function is, nevertheless, probably good if appropriate facilities remain intact and usable instructions are disseminated. The demand that this function would place on their time must, in this case, be included in accounting for their allocation of disposable effort.

One point that seems to be suggested by the prior discussion is that women who function as cooks will probably have to increase the increment of time they devote to cooking. A corollary, not related to food but an appropriate parallel to the above notation, is that these same women will probably need to devote a greater increment of time to housekeeping than was necessary in the preattack world.

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[11] Bull, op. cit., p. 30.

Some of the problems of food supply, particularly the problems of establishing a supporting transportation system, are further discussed in the SRI report discussed earlier.[12]

N_2 - Water

There is certainly no need to discuss the need for water. It is clearly established that water is indispensable. Man can perhaps survive on a pint of drinking water a day and maintain health on a quart. However, this relates to only a small aspect of a contemporary American's need for water. Cooking, bathing, washing and other water utilization habits, along with the requirements of water to flush our sewerage systems, far exceed these minimal demands. Typical household requirements run to many gallons a day. Significant curtailments and some substitution of untreated water for treated water may be appropriate in emergencies.

The direct effort involved in normal procurement of water is negligible. For the vast majority of us it consists of a few steps to the nearest tap. Indirect effort involves a minimal support of efforts by plumbers to install and service water distribution facilities and the payment of water rate charges to the public utility organization that supplies the water to one's connection point. The need this imposes on income is small.

The need for water is universal and, in normal times, inelastic. Opportunity to use water from the public water supply is only limited by location within a municipality's limits and ability to pay for water services.

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[12] Clarke, op. cit.

Variations in consumption for various social classes may exist but are of little social significance. The most important aspect about water, in this analysis, is that it is supplied by a public utility. It is not a commodity obtained in the market with several different suppliers for the consumer to choose among. This gives it supply subsystem characteristics that place it, along with other utilities, in a special category in the general production subsystem. The artifacts, particularly the distribution lines, of the water system are made available to users on the basis of public decision regarding their construction. This requires that there be a local government organized in such a way as to inform, lead, test and implement public sentiments in these regards. The operation of the system is in the hands of a few skilled public employees whose knowledge and skill goes beyond general technical knowledge to knowledge of where different elements of a geographically dispersed system are located and the peculiar operating characteristics of some of these elements.

The billing of users for services is handled on a monthly, accumulated usage basis somewhat different from market procedures. Collection of charges and payment of employees of the utility presupposes the existence of the government of the municipality.

The water supply system is vulnerable in a number of ways. One of its primary vulnerabilities lies in the concentration of knowledge of systems operation in the hands of a few people who might or might not survive a nuclear attack. This vulnerability--common to many public utilities--can be guarded against by familiarizing several standby alternate crews with the system. The distribution portion of the physical system itself is not particularly vulnerable unless a ground burst cuts a major line. Breakage of major lines is a real possibility and a cut-off and repair contingency plan is appropriate. The purification and pumping stations

are subject to the same vulnerability as other surface institutions. By virtue of their concentrated characteristics, they are sources of complete system disability if they suffer close-in blast effects.

The SRI postattack recovery management paper of November 1969,[13] discusses water distribution as well as food. The material and manpower resources necessary for a vehicular distribution of potable water are evaluated. The possibility of serving sewer flushing and other needs that can be served by untreated water pumped through the distribution system, supplemented by a vehicular distribution system for potable water, has real possibilities for immediate postattack societal operation. While such a system could be effective, it is important to note that it, like other alternate systems, is much more labor intensive than the preattack system. Consideration of this and the labor requirements of repair must be taken into account in the manpower allocation management system.

Here, as in other substitute system operations, the requirements for organizational and managerial skills will increase and needs for management information from a good management information system will be very great.

N_3 - Protection from Threat in the Natural Order

N_3a. Temperature Maintenance

All living organisms survive within some bandwidth of ambiant temperature outside of which their organic functions cease. Typically, organic functions are most active and efficient at or near the middle

[13] Ibid., p. 20

this range and tend to deteriorate in functional effectiveness toward either extreme of the bandwidth of survival. This survival bandwidth appears to be both a function of the basic constitution of the organism and certain conditioning processes that the new organism experiences in its early growth processes. All this is particularly true for man. The human potential bandwith is a bit wider than most contemporary Americans would expect. Human tolerance for a cold environment is illustrated by the successful performance of natives of Tierra del Fuego and Hindu mystics living high in the Himalayas. Tolerance for heat is exemplified by the Bushmen of South Africa. However, modern Americans are not conditioned to be able to survive and function at these extremes. The working bandwidth for modern Americans is probably between 60° F and 100° F with the most effective work being performed at temperatures between 70° and 85° F. A minimally viable society will provide people with the means for maintaining their body environment temperature between 60° and 100° F. Since we live in a temperature zone of a relatively cool planet, our concerns can be concentrated on protection from cold.

The need satisfiers are, very simply, clothing and buildings with heating equipment being included in the buildings' need. The question of how much clothing is needed is somewhat difficult to specify. Americans spend about ten percent of their income on clothing and services. Since much of our clothing expenditure is status supportive or "conspicuous consumption," we might use the clothing consumption of the poorer (but not impoverished) people of the society as a reference point for determining temperature maintenance needs. On this basis, rough estimates suggest that about one-third of current expenditures and, by inference, of related occupational role playing effort serves basic temperature maintenance and closely related need satisfaction.

Amount of building required for protection from the environment is more a matter of quality than quantity. There are two basic types of buildings to be considered--buildings providing working environments and those providing living environments. The quantity of space for the former is determined by the work processes housed within, while the space requirements for living environment (homes) are determined by aspects of primary group needs--particularly privacy needs--that are dealt with below.

The quality requirements of both types of building are essentially the same. Quality is determined by the adequacy of construction and repair and by the adequacy of the heating system. One crucial element in maintaining environmental quality is heating fuel supply. Approximately three percent of consumers' disposable income devoted to current consumption goes to providing household heating. Perhaps some five percent of GNP goes to the providing of heating for living and working space. This quantity of heating fuel production probably serves as a rough measure of minimum requirements to provide viable environmental quality.

Housing construction itself, in normal times, seems to be significantly related to status and living style needs. As American productivity has increased, the average square footage of home living space has increased for all classes and is distributed according to class, house style being one of the well identified correlates of class. Americans spend about 14 percent of their disposable current consumption income for housing. This is divided up between construction and repair costs and financing charges. We have no ready basis for estimating how much

construction effort is related to serving basic temperature maintenance needs apart from spatial considerations. Spatial considerations are dealt with under Primary Group Needs. We can guess that a somewhat small percent of current available occupational role playing effort would be required to sustain minimal viability housing requirements and that a corresponding proportion of available effort would be required to sustain minimal viability work space building requirements.

Minor repair maintenance of the home requires direct effort and is largely performed by the male head of the household. A few small sample studies and personal observations suggest that the typical man in our society spends about 18 hours a week on household chores. These are divided among beautification, such as lawn and garden care, and basic maintenance. Perhaps over a year this averages out to be about 9 hours a week for each.

Women contribute a substantial amount of time to housework each week. It would be reasonable to charge much of this to sustaining an environment for primary group activity. Some of it is chargeable to basic home maintenance. In trying to allocate this time, drawing on assumptions that women at home work a total of about a 70-hour week, we can assume that on the average about 21 hours are devoted to housework, chargeable to house maintenance and to primary group support needs.

The remaining effort requirements are largely those of indirect efforts associated with gaining an income. Under normal circumstances, Americans devote about 30 percent of expenditures for current consumption to housing when utilities, operation, household furniture and equipment are included. One might presume that motivation to exercise

occupational role playing effort is derived partially (about 30 percent) from needs to maintain a home, which includes need for temperature maintenance, need for a place for primary group interactions (see below), and need for status (see below).

The societal subsystems and elements that are necessary to men's satisfying of their temperature maintenance needs include a construction and repair industry, a clothing industry (but possibly at reduced capacity in terms of style and variety) and a heating fuel supply and distribution industry. In order that men may be able to take advantage of these industries in a culturally established fashion, they must have disposable incomes--essentially wages. Auxiliary to these is a need for clear definitions of property rights that allow men to use and continue to use the durable goods acquired to serve their temperature maintenance needs.

The need for temperature maintenance in one's living environment imposes a need for a certain quality of construction and the production of a quantity of heating and cooling equipment on the production process. The preattack output quantities in these sectors and the amount, skills and qualities of worker effort associated with such output are determinable.

The amount of repair effort that should be appropriately expended is dependent on several factors. It can be focused in two areas: (a) working environment; and (b) living environment. Repair of buildings that house the machinery of production (taken in its broadest sense) is dependent on the importance of the particular product line to society, the damage incurred, and the amount of discomfort and inconvenience workers in the facility can tolerate without impairment of their productive effectiveness. We will hypothesize (and hope to examine further in terms of relevant empirical information) that workers can tolerate a fairly high level of discomfort and inconvenience in the working environment if they have a comfortable home to return to after work. Reasoning along the same

lines we hypothesize that a high level of discomfort in the home environment makes discomforts in the working environment a greater depressant on productivity. Also, we hypothesize that discomfort in the home environment has a direct depressant effect on worker productivity, even if the work environment is comfortable.

The implication of this line of reasoning--which remains to be supported or modified by a systematic ordering of relevant empirical information--is that grossly damaged buildings housing crucial production facilities (perhaps wheat flour mills would be a good example) should receive immediate repair attention aimed at achieving a semi-permanent condition of minimum adequate repair. Minimally adequate repair is tentatively defined as protection from direct effects of the weather and the capacity to maintain an interior temperature of at least 55° F in the circumstances of the coldest normal external ambient. This would include, also, provisions for a potable water supply of at least one pint per worker per day and some toilet and sewage disposal--chemically serviced outdoor preferred, but covered latrines acceptable where soil conditions permit.

After allocation of construction repair effort to this primary production support task, additional construction and repair effort should focus on private housing, if our theories about its importance are correct. In setting minimum standards as goals for this effort, a wide variety of considerations apply. If we consider such scenarios and transattack plans as the SRI plan for handling people in Albuquerque, we recognize that, in the immediate transattack-postattack situation, there are likely to be a good many displaced and homeless people. If planning of the order of that suggested by the SRI study is effective, many of them will be situated so as to be under the guidance and control of the civil defense

leadership. We can be reasonably sure that these people will be housed somewhere. Plans are not as clear as we might like them to be, but it is reasonable to assume, from prior studies, that housing displaced persons is going to mean billeting them family-by-family (for reasons to be developed below) with families whose housing and related facilities have survived. Information from such situations as English and German billeting in World War II suggests that this is feasible and, at the same time, fraught with morale problems. This same information suggests that the morale problems increase over time. We must emphasize here that while alternatives to billeting are still being discussed, it is impossible to develop meaningful contingency plans without having made some decisions on a most probable level. Thus, we assume that the question, having received considerable attention in the OCD dialogue, can be resolved in favor of a large amount of billeting being undertaken.

Given billeting, we know that certain support functions of households such as water supply and sewage disposal can become overloaded. The density of billeting is much more likely to be determined by the ratio of displaced persons to billet facilities rather than by considerations of predetermined optima or tolerance levels. Yet these considerations will be involved in contingency plans. Needs for support services and need for some internal building effort such as partitioning and improvement of previously unused interior space can be treated as a function of billeting density. The manpower and skill requirements associated with contingency plans for immediate support of billeting will be defined in these plans on the basis of billeting density. Auxiliary support for these services will also be indicated. Since we can anticipate overload of sewerage facilities at certain levels of density and, perhaps, limitations on water supply needed to flush sewage mains, we can anticipate need for outdoor latrines.

This not only requires some construction which will be needed immediately, but also creates a demand for sanitizing chemicals. This, in turn, forces a demand on the production processes that need immediate re-establishment.

The process of billeting families together interferes with the basic and culturally elaborated need for primary group privacy. Lack of satisfaction in this area can be tolerated well for a short time, but becomes a source of increasing frustration over time. This frustration not only produces antagonisms among the people living together, but also probably has a negative effect on the quality of occupational effort exerted by group members outside of the home.

Recognizing that billeting will probably be necessary and that it is nevertheless undesirable (with its undesirable characteristics increasing with time), it seems imperative that plans be developed to provide housing for individual families as soon as possible. These plans should focus on repairing and rebuilding surviving structures that have the capability of becoming part of neighborhoods. These neighborhoods should be repopulated by people who had previously lived together in neighborhood groups. It is fundamental to the nature of human communication that communication efforts are most effective among people who know each other well. Cooperation and mutual support are also best achieved on the foundation of long-standing familiarity. In contributing to occupational role playing quality, and in providing a base for the many forms of volunteer role playing that will be important to societal survival and recovery, this rebuilding of neighborhoods will be important. It will greatly facilitate reestablishment of "automatic" social controls and will make governance more effective.

Neighborhood relocation is dependent on the quality and quantity of surviving buildings and the possibility of providing utilities service

and communication for the neighborhood. It is not necessary that survivors have as much living space as they had in the preattack situation. Where space is limited, the criteria set forth in the SRI report,[14] seems like a reasonable target for development. The SRI minimum space standards (10 square feet/person) do not provide room for large people to lie down side-by-side with comfort and are not recommended. However, other "minimum" criteria cited in the SRI report seem to constitute reasonable minimum characteristics for initial neighborhood housing, if the housing is repairable in less than one year to the "adequate" level.

N_3b. Medically Safe Environment--Health Preservation

In our society, we typically expect a certain life vigor and life span. We expect, and need, to be healthy and active over a period of years. What we conceive to be reasonable protection is culturally defined. In our society this includes a belief in the possibility of continually expanding this protection.

A medically safe environment can be considered as a need in two senses. In one sense, there is a need to be protected. When adequate protection is not provided, people react by being less able to work and more likely to agitate in a fashion that is probably quite similar to semi-starvation reactions. In another sense, one needs to feel that he is protected. A high rate of illness in the society is anxiety-producing for those individuals who are not themselves sick. This probably reduces the quality of their effort, making them more susceptible to participation in civil disorder agitation.

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[14] Clark, op. cit., p. 33.

Considering that the people we are concerned with are people who will have our contemporary society as their point of reference, it seems reasonable to expect that their need for a medically safe environment can be defined as an illness and death rate close to that of contemporary American society.

The means of satisfaction of our need for a medically safe environment are health care facilities, drugs, sewerage disposal systems, and medical and related personnel to provide the health care treatment and preventive services. One element of these services is the national disease control efforts staffed in the Public Health organizations by competent epidemiologists.

There are, then, two foci for consideration of the need for a medically safe environment. One is life and health itself; the other is morale. Considerations of sustaining life and health have a direct relationship to the supply of occupational effort that people can provide for the system. Considerations of sustaining the belief system that people have regarding the ability of their society to provide protection for them from disease and epidemics are reflected in people's morale. People typically can make adjustments to living with dangers that have an identifiable and predictable form that can be recognized and responded to. This probably remains true even when the means of response is considerably less than reliably effective. It is important that people can recognize the warning signals of danger (as of radiation sickness) and do something that has at least a chance of helping them avoid the threat.

We can turn to the histories of famines and plagues to get some idea of how devastating to morale, even for those people who are not affected, the threat of this kind of danger can be. It seems to be clear that the threat of danger that cannot be easily identified or rationally

coped with is the kind of threat most likely to produce extreme anxiety, irrational and even panic behavior.

This all suggests that some very serious contingency planning should be devoted to steps to prevent the spread of disease in epidemic proportions.

The most serious problem that seems likely to face a postattack society with regard to epidemics is the scarcity of trained public health workers in the society. There aren't many to begin with and they probably are concentrated in a few research and administrative centers that make them vulnerable to disproportionate mortality. Medical doctors, in general, are somewhat similarly vulnerable, but will survive in greater numbers. If we assume that most medical doctors could serve as technical advisors for directing the implementation of epidemic preventing contingency plans--if such plans were worked out--but are not as well equipped to develop such plans in a postattack situation, the desirability of preattack contingency plans becomes more apparent.

It seems absolutely essential that competent epidemiologists take a careful look at postattack contingencies and develop a plan for responding to contingencies that might result in epidemics. These plans should spell out requirements for drugs and chemicals needed in their implementation and requirements for all other equipment. They should also spell out the requirements for medical personnel and paramedical personnel for their implementation. At this point the plans will need to be elaborated to include first and second alternative procedures in the event that these resources are not available.

N_4 - Primary Group Support

It is widely recognized in sociology and psychology that an individual has a need for frequent repetitive experiences of very personal

interaction with one or several people who share many or most of the important aspects of his life pattern. This interaction has been called primary group experience. It can be theoretically argued that such experience is necessary to the sustaining of personality and a clear self-concept. Some empirical evidence suggests (for example, Emile Durkheim's study of Egoistic suicide[15]) that extreme deprivation in this area leads to suicide or at least makes one lethargic and far more susceptible to committing suicide. The need for primary group experience is not one that all men are consciously aware of, but theory and empirical evidence--particularly evidence from disaster studies--support the thesis that man needs his primary group and has a deep compulsion to try to preserve it.

There is no clear concept of minimum requirements in this area. It seems reasonable to consider that the requirement can be measured in hours per day provided it is recognized that the hours so designated must have a quality of privacy and intimacy associated with them. It is perhaps not as obvious as it is in the case of food consumption that deprivation in this area will affect the quality of a persons's occupational effort much as food deprivation does. It is not unreasonable, in light of our current knowledge, to hypothesize that this is the case.

We will estimate that adult minimum requirements from each other are one hour per day. Below this level, we will guess that significant degrees of lethargy set in and that at the point where primary experience goes to zero, productivity approaches zero. We will guess that above the level of one hour of primary group interaction a day, the

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[15] Emile Durkheim. Suicide (Glencoe, Ill.: The Free Press, 1951).

individual is accumulating surplus pleasure that has little bearing on his productivity. We will further guess that children require from adults primary group attention and that they need more of this kind of support than is required by adults. A child or group of children in a single family require a minimum of three hours a day of primary attention from an adult if they are not to become community problems and absorb other forms of community effort. While the numbers assigned to the need requirements here are highly speculative and require considerable analysis and testing, the general concept is, we believe, defensible. An adequate analysis of human needs that must be supplied by social process must take such considerations into account.

There is an auxiliary need that is a concomitant to the need for primary interaction. This is the need for a place for this primary group interaction. It is inherent in the nature of man, and in the nature of social life, that man needs to have his requirements for primary group interaction met in some patterned, regular way. In practice, this means that man needs a geographic place of reference that provides some privacy to which he can return daily with the expectation of finding members of his primary group. This need is largely satisfied within the context of satisfying man's needs for shelter from the elements, but the requirement for privacy for primary group interaction adds a further dimension of quality to considerations of shelter. We may guess that man's productivity is directly related to the degree to which his environment provides him opportunities for primary group privacy up to the point of minimum need satisfaction.

The predominant form of primary group pattern in every society is the family, and we can usefully concentrate on family needs in dealing with the material needs related to primary groups. The almost daily

periodicity required of primary group interaction is institutionalized in our concept of the private home. The private home provides a place to which each member of the family can return for a period of time every day and confidently expect the other members of the family to share with him his primary group interaction. This geographic point of reference is a necessary tool of primary group and family life. People must have a place to meet and privacy for their meeting together. Primary group interaction necessarily has an intimacy about it that can only be effectively expressed in private. It is the intrusion into primary group privacy that creates the greatest tensions in billeting of several families together and in other mass housing arrangements. Whatever the circumstances of life, the members of a primary group need a place where they can come together and move around in a privacy protected from the sight and hearing of outsiders. A viable society will be one that provides family housing on this basis.

Just as a geographic place of reference is necessary to the existence of primary groups, so are means of transportation to and from this place of reference. In village subsistence societies, many people live and work in the same locality. All of life merges into one complex of interactions with the same small group of people. In such a society, life is lived within the primary group, and going out from and returning to the group may be only an occasional experience. However, with division of labor, this changes and, in a complex industrial society, work and many other forms of role playing are separate from the primary group both in time and in space. The spatial separation imposes the need for transportation and for arteries of transportation between places of formal role playing and "home." This also imposes a travel time demand on the worker and on every other activity undertaken outside the home. The greater the division of labor and the specialization of activities outside the home, the more time will be absorbed in travel.

Separation of primary group members, both on a daily basis and on an occasionally extended basis, imposes demands for communication facilities. Such facilities as mail and telephone would not be important in a subsistence village society. There, when internal emergencies occur in the primary group, all primary group personnel are available for assistance. The dispersal of primary group members for a portion of each day imposes strains on group functioning, particularly on groups whose functioning includes the socialization of children. Primary groups are not without functional differentiation among their members and problems do arise that are best dealt with by an absent members. Rapid means of communication in these circumstances significantly contribute to sustaining the solidarity of, and satisfaction derived from, primary group membership. Over periods of extended separation of members of a primary group, mail and telephone communication provide important linkages that sustain the group and provide its members with some primary group satisfactions.

We may note in passing that sexual experience (sometimes thought of as needed by all men) is particularly satisfying and enriching as part of primary group experience. Proximity is an absolute requirement and privacy in such experience is both a culturally defined requirement and a contributor to the sustaining of primary group relationships.

The quantities of time that we guess must be devoted to direct satisfaction of primary group needs are noted above. Where there are children in a family primary group, some division of labor is indicated. We have hypothesized that adults need to give to, and get from, each other, at least on the average, one hour a day of primary interaction. We have specified this as an absolute and essentially irreducible need. Putting it this way suggests that people will give almost unlimited

effort to protecting, preserving or reestablishing this relationship when it is disrupted or threatened. This becomes a major motivation behind efforts to establish a private place of residence with clear rights of occupancy. It is also a motive behind the traveling back and forth to work that occupational role players do. We hypothesize that income and status needs can cause a person to devote considerable time to traveling to and from a place of employment, but that this travel time is limited by primary group needs. We state, as a hypothesis, that typically, no man will travel so far to work that work, sleep, personal maintenance and travel time reduces his one-hour-a-day of primary interaction. We further hypothesize that where workers are temporarily separated from their primary group for a period of time there is a strong motivation to seek time to return for a visit. Further, where visits, communication and effective substitute primary relationships are not developed, such separation will have a negative effect on occupational role playing output. These hypotheses--if supportable--have significance for postattack planning and management.

We have estimated that children typically require, on a similar absolute basis, about three hours a day of primary group-type interaction with an adult or adults. This interaction typically involves about one-half hour a day for the man of the family and about two and one-half hours for the woman, perhaps apportioned somewhat differentially when the woman also plays an occupational role. Thus we are guessing that primary group needs require about ten and one-half hours of direct effort from a father and twenty-four and one-half hours of direct effort from a mother per week.

The housing space requirements for successful primary group and related interactions are significantly influenced by cultural norms. Some concept of what might constitute adequacy in our society is

derivable from considerations of housing adequacy that are not explicitly concerned with the primary group interaction problem. Drawing on the 1960 housing census and a Bureau of the Census working paper on the quality of housing, Donald Clark developed the following criteria for adequate housing:

> Less than 1.5 persons/room (~120 square feet)
> More than 40 square feet sleeping area/person
> More than 25 percent of rooms with heat
> Electric service
> Gas service
> Potable running water
> Toilet and sewage disposal
> Outside window in each room [16]

While these requirements include elements that go beyond the primary group needs requirement, it seems reasonable to expect that "primariness" might be achieved within such dimensions if one adds the proposition that some form of separate unit satisfying these requirements be available to each primary group.

Indirect effort goes into obtaining wages to pay for housing, transportation and communication. We have considered housing costs above. Communication costs are relatively low. Transportation costs are a major item in current consumption expenditures of American consumers. Apparently 15 percent of current consumption expenditure goes to transportation costs. That this is partly related to status maintenance is suggested by the fact that upper-income families tend to spend twice the percentage (therefore, five or six times the money) on transportation as do lower-income families. Yet, even for lower-income families, transportation expenditures constitute about nine percent of

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[16] Clark, op. cit., p. 33.

disposable income. By no means is all transportation cost chargeable to maintaining primary groups. A significant amount is chargeable to exercising employment opportunities which, in turn, is indirectly chargeable to every need that depends on goods and services. It is useful to note that transportation and other forms of communication are a functional requirement for sustaining many forms of societal life and are clearly identifiable as subsystem requirements for serving primary group needs among others. The strong motivation that emerges when primary groups are threatened has implications for the sustaining of transportation and communication subsystems.

One of the fundamental changes that would be produced in society by a major nuclear attack would be found in the number of primary groups experiencing disruption due to the loss of one or more members, all at the same time. Our earlier studies have suggested that the basic American demographic structure would not be severely altered by nuclear attack. The age, sex and other associated ratios would remain about the same. However, while the proportion of "fathers" in the population would be about the same, many of these "fathers" would either not have surviving families or would not know their locations. The same would be true for each of the other types of primary group members; there would be a great increase in the number of orphans.

The disruption of primary groups will have significant consequences for the organizable man hours available to be used in the post-attack production process. Both quantity and quality of available effort will be affected. Contingency plans will be needed to keep this effect to a minimum, and the first organizational response to the problem probably should be the reestablishing of the private communications system and the development of a nationwide missing persons bureau.

One of the basic characteristics of loss of a primary group member is grief on the part of survivors. Grief has consequences for all other aspects of a person's life. It derives from the emptiness in one's life created by the loss of someone intimately and constantly involved in, and complementing, one's life. However, grief can be worked through. Working through grief begins with the acceptance of the fact that the friend or loved one is really gone. Uncertainty in this regard delays the working through of grief while causing many of grief's affects. Thus, the effective missing person's bureau is of considerable importance in the immediate postattack period.

Adoption agencies for handling orphans are equally important. Once parental or child loss is established, people may be ready and particularly willing to recreate families out of previously mixed groups. Adults who have lost mates will soon make readjustments with other single adults without much need for institutionalized assistance. However, the placing of children with foster parents has no such automatic process associated with it. Yet this is probably by far the best way to try to handle a large orphan population and some organizational planning to do this seems in order.

Apart from this, the primary group postattack problems are largely involved in and solvable with respect to developing housing and communications. Housing has been discussed above and communications is part of the production subsystem.

N_5. Status Needs

The nature of status is discussed at some length in the following chapter. It is important to note that everyone has his place in a society and that being able to identify one's place is important both to mental

health and to the ability to function as an effective contributor to the ongoing processes of the society. Status is conferred on us by family of origin (the family formed by father and mother), and tells us how we can best react to and coordinate our activities with others in the larger society. It provides us with reasonable and obtainable goals and helps protect us from setting goals for ourselves that are unreasonable and unobtainable.

Every complex society has a hierarchically stratified structure. We have diagrammed the American class structure and briefly discussed it in an earlier work.[17] Having membership in a particular social class means having a particular status. Maintaining status is very important to every individual. Much of the expenditure of effort exerted in occupational role playing in our society is directly or indirectly related to securing or maintaining status. Much of the goods and services consumed in our society is consumed in maintaining the style of life necessary to each person's status. Without the consumption associated with maintaining status, called "conspicuous consumption," the needs for consumer goods and services would be significantly reduced. Yet, it is very difficult to draw a line between functional consumption and conspicuous consumption. An economy model of the least expensive Chevrolet is just as functional for pure transportation between points as a Cadillac; but a Cadillac provides more comfort. This comfort may be just as functional in influencing the quality of effort one is able to exert in various endeavors as is the prestige of Cadillac ownership.

Even if the line between functional and conspicuous consumption could be drawn, it would not significantly clarify the problem of effort

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[17] Hall, op. cit.

allocation and societal demand for goods and services. Even in crisis, the need for, and maintenance of, status will not subside. For instance: during the sinking of the Titanic, status differentiation among classes of passengers remain in effect and significantly influenced the fact that, proportionally, more first-class passengers than steerage passengers survived. During the siege of Leningrad, party rank, privilege, and status survived and significantly influenced who was allowed to leave. A postattack society will not be a society free of class and status distinctions, or of class and status-based consumption patterns. It is only safe to say that these patterns will be somewhat different than the preattack patterns.

For the vast majority, there are groups of people who have higher status than we do. For most people this is not a problem. We measure our achievements and count our satisfactions in terms of our relationship to the status of our family of origin, not in terms of the total status scale in our society. Except for those at the very bottom of the status scale in poverty and without much hope, most of us can take pride and find satisfaction in our social position. Knowing where and who we are with respect to the rest of society is a need. Without this knowledge we are all adrift and uncertain like strangers in an alien culture. We are uncomfortable and ineffective and, if the condition persists, we suffer great anxiety and frustration. Knowing where we stand in society and having this appropriate status in the eyes of our associates is possessing something we need.

We can best approach the answer to the questions of how much status motivation and how much status-related demand will be found in the postattack world by considering why people need status. Perhaps the most important aspect of status is that it allows one to place himself

in the societal system. One doesn't really develop a conscious sense of status, per se, in our society. What one develops is an awareness of which people enjoy life style practices and activities similar to one's own, which people expect to have the societal "crunch" to demand and get a degree of deference from one in certain aspects of social interaction, which people one can make these same kinds of demand on and, in general, where one fits into basic patterns of social interaction. One learns a more or less coordinate system of roles. The sociologist observes these phenomena, making the analytic judgment that one belongs to, for instance, the upper-middle or lower-middle class; but in doing so, he is only describing reality, not creating it.

In learning about one's class memberships--a learning that largely takes place in childhood and adolescence--one acquires certain goals. One identifies certain occupational roles that give appropriate status, learning to act out elements of the life style consistent with the status and learning how to enter into volunteer roles that further support one's own class status. In identifying occupational roles as goals, one generally finds access to them. Thus, with limited and achievable goals one can achieve societally bestowed dignity. The status system thus defines goals that are achievable for young people and grants them both a socially sanctioned sense of dignity and a sense of reasonable limits for their status-related efforts when they have achieved them. The status system allows the worker, who has achieved and is maintaining an occupational role appropriate to expectations derived from childhood socialization, to rest from his labors with a sense of accomplishment. The contrary state produces, according to Emile Durkheim in his classic study, Suicide, a state of anomie which is highly suicidegenic. Durkheim believed that all men need a sense of upper limits for their achievement striving. Without a sense of finite, achievable upper limit for striving,

there is no rest for anyone who seeks a sense of achievement, and every small failure is devastating. Class defined goals protect most of us from this condition.

It therefore appears that, in a society characterized by a high degree of division of labor and by values that rank some efforts above others as service to individuals and society, a status system is quite functional. Unfortunately, this does not prevent some people from seeking out goods and services for conspicuous consumption while others in this society fall below the bare necessities or subsistance level. Societies do not necessarily adequately provide for all members before providing for conspicuous consumption for some people. In fact, our own preattack society fails to provide minimum qualities of food, clothing, housing and medical care for a minority of its people, while supplying the majority quite adequately and, in fact, supplying some with great luxury. The postattack value system will be directly derived from the preattack system and we should expect that people who are accustomed to an upper-class style of life will make substantial efforts to continue at a similar life style level even to the disadvantage of others. Their own personalities are tied up with such a life style and, while they will be able to make adjustments downward, they will expect to be able to maintain a differential life style advantage over lower class persons. Without this opportunity, occupational role playing motivation will be substantially lowered.

The message from the Titanic sinking and the siege of Leningrad as well as the expectations derivable from socialization theory is that lower status people will continue to accept the rightness of this differential distribution of goods and services unless minimum standards for their own survival are undermined and the functional effectiveness of upper status occupational role playing is called into doubt.

The roles and possessions that give us our status are the things we must have to satisfy our status needs. The most important determinants of status in our society are occupational roles. Each of us will seek opportunities to assume the occupational role for which he is prepared through experience and education. If this occupational role is not available, one will seek an occupational role that utilizes a portion of one's established skills and has occupational prestige that is close to that of his original role. People forced to seek employment well outside of their established skill and status level experience a substantial emotional crisis. Many people find themselves unable to handle such a crisis. On the other hand, a person given the opportunity to play his established occupational role in a crisis situation which apparently provides added importance to this role will experience a feeling of satisfaction and fulfillment that will keep him at his station for long hours, in the face of great danger, and to the exclusion of other demands. Given the opportunity, a person may exaggerate his occupational role playing effort beyond the level that is functionally useful to society.

Along with occupational roles, status symbols are devices that designate to one's self, and to others, his social status, thus serving one's status needs. Status symbols coalesce into a style of life different for members of each status group but basically the same for all persons within a particular status group. One of the most important status symbols for most Americans is the home we live in. Location, which is a somewhat random product of our preference beliefs and largely functional only in a symbolic sense, is one element of status associated with housing. People of similar status tend to live in the same neighborhoods. House size is another factor; the higher the status for a certain style of house, the more space per person living there.

The quality of durable goods used by a person, particularly his automobile, has been a traditional status symbol. The quality of consumed goods and services and patterns of recreation are also status symbols.

The volunteer roles one plays are associated with status. People who feel slightly marginal about their status or who are seeking upward status mobility tend to actively seek appropriate volunteer roles that will provide support to their status. (We do not hypothesize that this is the only reason for playing volunteer roles.)

The amount of status need satisfiers that a person requires to sustain himself in a condition appropriate to minimum societal viability is somewhat difficult to specify. Yet, certain guidelines seem to be indicated. All status symbols are relative. Society, in slowly developed social process, assigns status value to material status symbols. Role status is unlikely to change drastically even in crisis or disaster; it is embedded in all personalities through the process of long socialization. Material status symbols may be less durable, although they are unlikely to completely evaporate.

Status is inherently group-specific. Each group of people in the social stratification structure needs to have access to its own type of roles and to status symbols appropriate to its established level in the status hierarchy. People can be expected to try to manipulate society even in crisis and disaster to sustain these forms of social differentiation. Further, if a level of satisfaction of other needs appropriate to minimum viability is achieved for all people, most people will readily accept the maintenance of pre-disaster status differential in the post-disaster situation.

The device that permits people to acquire material status symbols is income distribution. The most essential status element for

a person has previously been designated as occupational role. Acceptance of differentials in life style above minimum viable conditions seems likely throughout society. Therefore, the system of organization of postattack society that will provide satisfaction of status needs seems to be one that would assign persons to occupational roles consistent, as far as possible, with their preattack skills and status, and would provide wage differentials and, above a satisfactory minimum for all, housing differentials along established status lines.[18]

In short, we propose that calculations of minimum production requirements for a viable postattack society begin by assigning a minimum "adequate" consumption life style to the upper-lower class. This can be related to the present consumption of this class as a ratio. Consumption demands of classes above the upper-lower class can be corrected from preattack consumption demands by this same ratio. It is the sum of these consumption demands plus a very close-to-minimum viable consumption opportunity for the lower-lower class that defines the production demand of a viable postattack society. If such goods and services can be produced and distributed, status-related motivations for occupational role effort will remain at the same level as they held in the preattack wolrd.

N_6 - Societal Security

There are two basic conditions of social life to be dealt with here. One is the condition of experiencing immediate need satisfaction in terms of the basic needs. The other is the condition of expecting that these needs will continue to be satisfied in the future in the same way and as a

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[18] We take the position here that reestablishing a viable society is of paramount importance. Opportunities to deal with preattack social ills will arise. We presume they will be dealt with through democratic process within the framework of a viable society and that they can best be dealt with if the viable society exists.

result of one's continuation of present forms of expending effort. It is this second aspect of social life that we are particularly concerned with when we deal with "societal security" as a need. Basically what we are proposing is that man needs to be able to look forward to a stable and secure future and that such expectations necessarily depend on the state of his society. Man is, uniquely, the living creature who can form a concept of the future in his mind in the form of symbols. He does this by projecting from the conditions of the past and present. If his past and present do not provide him with a basis for conceptualizing a clear and satisfying future, he becomes anxious. The anxiety experienced because of this lack can be debilitating and can lead to irrational and dysfunctional behavior. The past from which men in our society project their image of the future is the common heritage we have all experienced as interpreted to us by cultural norms and through socialization. At any time in our history, our present, viewed from this perspective, either does or does not provide us with a basis for anticipating a viable future. We need from society, at each time in history we are living through, the symbolic basis for projecting a viable future. The society that gives us this provides satisfaction of our need for societal security.

There are three basic ingredients of societal security. First, people's needs--the ones listed above in this report--must be satisfied at a level that seems consistent with the opportunities immediately offered by the environment and in a fashion that seems consistent with basic cultural values. Second, the key symbols of continuing societal functioning must be stable and clearly visible. Third, social solidarity and the rightness of the system must be continually reaffirmed by appropriate ritual. We have discussed at some length the nature of, and requirements for, the other need satisfactions. It seems sufficient

to note here that this is a precondition for satisfaction of societal security need.

In discussions of the means for acquiring satisfaction for other needs we have mentioned some of the symbols that contribute to societal process of need satisfaction. Money is symbolic of a free market system's process of exchange. The presence of a supply of money that is functionally useful in economic exchange without great fluctuation in value is a basic symbol of societal stability. Stable money value is the essential symbol. Employment opportunity at stable wages is symbolic of societal stability. A stable price structure for available goods and services is symbolic of societal stability. Functional administration of law and order to provide actual and symbolic protection for person and property is symbolic of societal stability. Health care facilities and organizational manifestations of protection from disease are symbolic of societal stability. Property rights, particularly property rights in relation to one's established place of primary group residence, are crucial symbols of societal stability. Information systems that provide a basis for an awareness of events and processes taking place throughout the society for all its members are a symbol of societal stability. Means of expressing satisfactions, dissatisfactions and concerns to established leadership are expressions of societal stability.

Yet, having these symbols of societal stability never seems to be sufficient to man's needs. All men are, apparently, in need of reassurance of the permanence of these things and are in need of assurance of the inherent rightness of the system that produces them. Many analyses have emphasized the importance of ritual for providing reassurance of social solidarity and the rightness of the societal system. Every people in every society have ritual practices that reaffirm their society.

Some are performed within the context of religion; some are strictly patriotic; some are quasi-patriotic and quasi-educational or quasi-social. All absorb time and we may reasonably estimate that men need, on the average, to devote at least two hours each week to society reaffirming ritual. In contemporary America, our society-affirming ritual practices probably absorb at least twice this amount of time a week. In times of crisis, it may well be that an increase in society affirming ritual time is required, particularly if the feeling of increased solidarity and the occupational quality form of this increased solidarity are to be developed.

Law enforcement and the administration of criminal justice is a form of activity that is both functional and ritualistic. Its ritualistic aspects are probably more important than its functional effectiveness in protecting persons and property. No police department or system for the administration of criminal justice can prevent crime and deviation in a society if the majority of the members of the society feel free to deviate in one or another way. Societal consensus on societally imposed informal sanctions are the basis for law and order. Police departments, courts, and correctional facilities exist to both symbolically and functionally impose constraints on the few who escape socialization into societal consensus and the pressures of informal sanctions. Even at this level, the nature of crime and the nature of resource allocation which a society can afford to make to its police is such that all crime cannot be prevented. We must add to this consideration that our knowledge of personality development and societal structure is not yet such that we know how to prevent crime even if the resources were available.

In this context, we believe that law enforcement and the administration of criminal justice has a very important symbolic and ritualistic role in affirming societal stability. We punish offenders, not so much because we expect punishment to reform them--the failure of the very

best we have ever been able to do in corrections systems attests to the fact that with current knowledge, it is impossible--but because in the act of punishing them, we affirm our belief in and support for the law they have broken and the system it is a part of. If this is true, it is very important that we find ways to operate a highly visible criminal justice system within the framework of societal consensus. In any situation, particularly in a post-disaster situation, it is important to the effectiveness of law enforcement and criminal justice as solidarity affirming ritual that we try not to develop and enforce laws that are not well grounded is societal consensus.

The question of how much of various goods and services is required for basic immediate satisfaction of other needs has been dealt with above. The question of how much money, what number and kind of employment opportunities, what form wages and prices should take, how much law enforcement effort, how much attention to affirming and defining property rights, how much in the way of medical facilities and sewers, what kind and how much of a communication system and how much and what kinds of religious and quasi-religious ritual expression must be provided for calls for a depth of model development beyond the scope of this current effort. Yet it appears that each of these questions is answerable, if not in terms of precise answers, in terms of some definitions of bandwidths within which the precise answers are located. It is not unreasonable to plan a next step of analysis to seek out these and other important coefficients.

This much we can state. A reasonably carefully developed money management system must be developed with reference to population, production capabilities and temporarily guided prices and wages. Efforts to provide health care facilities must parallel such efforts as reestablishing electrical power and must receive comparable emphasis. Some serious

thought must have gone into a system for redefining property and property rights consistent with residence needs, production needs and the reestablished monetary system (currency reform with a new minting and printing of currency is almost certainly indicated in a postattack situation). The reorganization of local community government systems around people who have both prior community management skills and some awareness of problems, indicators and systems contingency plans is clearly indicated.

The work required to develop the contingency plans needed to give to survivors a sense of societal security should not be underestimated. Societal security constitutes a need and if this need is not met at minimal viability levels, it will cause the kinds of uneasiness that leads to agitation just as failing to meet food needs above the level of semi-starvation does.

We will also suggest that two hours a week is a basic requirement for society affirming ritual and that ritual requirements increase as crisis for the society and threat to its continued existence develops. The crisis referred to here is a crisis in the belief system, not in the functional system. We need ritual to reaffirm our solidarity when we believe we are threatened. We need corrective action in policy terms when our society is functionally disrupted. Ritual is, therefore, a counter to perceived threat and a means for developing intensified solidarity. Intensified solidarity has been mentioned earlier as a producer of increased occupational role playing quality. Experienced threats to societally provided security are poorly countered by ritual; sooner or later they must be countered with programs to improve the functional effectiveness of the society.

N_7 - Tension Release

Tension is a state of being of a person that preoccupies his attention without being directed toward any goal achieving activity. By definition,

it reduces the quality of any goal-directed effort the person is engaged in and may inhibit his giving of time to goal-directed effort. While there has not been a substantial body of literature and research directed toward the subject as presented here, there has been considerable work done in analyzing the subject of anxiety by both experimental and clinical psychologists and a great deal of attention has been given to such subjects as frustration-aggression. Discussions of leisure time have presumed that how one spends leisure makes a difference in other performances. George Fisk writes, "The way in which individuals spend their leisure influences their mental and physical health and their job performance."[19] We are assuming that this is true and that out of the material on motivation, anxiety, frustration-aggression and uses of leisure, coefficients can be developed that are superior to the raw guesses we must make here.

There are probably several different types of tensions. We will only try to identify sources of tension that are rooted in the state of society. We specify three: excessive performance demands; insecurity; and excessive controls and enforcement of controls. The first and third are self-explanatory. The second, insecurity, is meant to refer to states of inadequacy or uncertainty with respect to basic need satisfaction. We suggest that there are two levels of experiencing lack of need satisfaction, each having degrees of intensity within the level. At the upper level, needs are not fully satisfied, or one is less than certain that they will continue to be satisfied, but lack of satisfiers has not reached the level such that there is substantial carry-over of feeling of dissatisfaction from day to day. An example related to food needs would involve a situation where people always felt a little hungry and/or that they would certainly like a little more to eat but, nevertheless, were not deprived to the extent that

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[19] George Fisk, "Personal Disposable Time: The Psychology of Occupational Differences in the Use of Leisure," in George Fisk (ed.), The Frontiers of Management (New York: Harper & Row, 1964), p. 267.

they were losing body weight. At the lower level, needs are unsatisfied to the point that dissatisfaction is carrying over from day to day. The person experiences a deprivation similar to loss of body weight.

At the upper level, tensions develop that can be dissipated by the kinds of tension release activities described in this section. At the lower level, the tensions that build up are too strong and persistent for release through such socially integrated and integrative channels. These tensions lead to agitation against the system. It is only the upper level tensions that we are concerned with here. The lower level tensions and their role in societal process are discussed in Chapter V.

The point to be made here is that some substantial degree of performance demand, insecurity and control is experienced by everyone in a complex society (probably proportional to the state of the complexity of the society). In normal societal operations of our society, we may guess that a certain average tension level develops as a product of societal complexity and that this is more or less evenly distributed in the society. Effort quality may, therefore, be directly related to the amount of tension release time that is available up to a saturation point. Since tension release activities have a quality of pleasure associated with them, it is quite possible that some of this activity is devoted to absorbing surplus time for pure pleasure.

It is not precisely known how increases of tension above current average levels affect quality and quantity of effort. It has been suggested in the literature that humans have a biologically-based need to exercise the stripped muscles, a need for general erotic experience and, perhaps within the latter, a specific sex drive. Other forms of experience that give pleasure, such as the experiencing of pleasing form and color in art and the experiencing of pleasant music, may be similarly relatable to something basic in man. It seems clear that given surplus time, man seeks out opportunities for one or more of the types of experience noted above. We may think of this activity as that of man living at the enrichment level.

These activities that absorb hours and give pleasure where surplus hours are available are also activities that seem to provide tension release when such release is needed. Other activities, that seem to be, in part, consequences of socialization, such as spectator sports, seem to have similar qualities. We have suggested above that there may be a level of tension that is general in our society. This tension can be thought of as requiring a certain amount of tension release activity if interference with occupational role quality and quantity is to be avoided. Just how much of the activity that typically is absorbed in this way in our society is necessary for tension release and how much surplus, we cannot say. George Fisk's material suggests differential emphasis along class lines and at least one hour a week devoted to pure recreation by everyone.[20] Other people, at other times in our society, have gotten along on considerably less leisure than we seem to have. Did they have more or less tension? Did they have adequate or inadequate tension release? Did inadequate tension downgrade the quality of their occupational effort? We cannot now answer these questions; but we can devise a program to try to answer them. Meanwhile, it is necessary to estimate the relationships between tension, tension-release time, and quality and quantity of occupational role effort.

We will guess that at the level of tension generation currently present in our society men need, on the average, one hour of tension-release activity per day to maintain the quantity of typically used occupational role effort at a quality level unconstrained by tension. We will guess that quality of effort decreases as tension release time decreases below this point, but not linearly. Quality decreases slowly at first, then

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[20] Ibid., p. 257--pure recreation (our term) involves specifically "boating, playing outdoor games and sports, fishing, swimming, nature walks, pleasure walking, attending outdoor sports events, hunting, skating and sledding."

approaches zero at an increasing rate as tension-release time approaches zero.

There is also the question of what happens to tension as average performance demands increase, insecurity increases and/or constraints and enforcement increase. Recognizing that there is no established measuring scale for these factors, or for tension itself, we will estimate that the relationship between tension-increasing factors and tension itself is linear. Further, we estimate that the time required to dissipate the increased tension through tension-release activities increases exponentially with tension. This is to suggest that, at some substantial level of tension, there is not enough tension release time available to prevent the tension from interfering with first quality and the quantity of occupational role effort.

We have suggested that tensions emerge as people give their attention to the excess performance demands, to the insecurities and to the controls present in their environment. Tension is, we believe, prevented when people are distracted from these attentions by an intense common interest or higher goal. Solidarity and common purpose tend to draw people's attention away from factors that produce tension. It is perhaps this process that contributes most to the increase in quality of occupational effort that is believed to accompany national crisis. We will hypothesize that a perception of societal crisis and of production as a means of combating crisis will reduce work-related tensions. The need for tension release and the adverse effects of tension on productivity.

The problem of measuring increased solidarity, measuring its tension-abatement capabilities, and identifying the degree of positive effect it will have on quality of occupational effort is one that must be examined at length before even tentative answers can be suggested. We can risk one speculation. When crises occur and insecurities increase

along with other tension-producing factors, a very substantial effort on the part of societal leadership is likely to be called for in emphasizing and promoting solidarity if the solidarity factor is to outweigh the insecurity factor.

N_8 - Education

This need has obvious characteristics and many subtle ones. We will make the grossly oversimplified assumption that, in the short-run period of post-disaster recovery, we can set aside consideration of satisfaction of this need.

N_9 - Satisfaction of Internalized Value-Derived Needs

Culture, as an element of the triad, culture-society-personality, is a system of rules and values. The nature of rules and values is that they can be made explicit in word formulae. These explicit formulae have an "ought" quality about them and are learned by children as they are growing up in the culture. Both the formulae and the obligatory or right nature of formulae supporting behavior are internalized by people of the society. Due to variations in the socialization process, some people have a stronger, more compelling set of internalized rules and values than others. Such persons have been called in sociological literature "inner-directed"[21] men. All men have some inner-directed qualities.

The internalization of compelling values has a motivational consequence; such an individual is compelled to try to act out his support of his values. This is particularly true where social situations exist

[21] See David Riesman, et al. The Lonely Crowd (New Haven, Conn.: Yale University Press, 1950).

which contradict his values. But such activity is by no means confined to social protest and efforts for social change; ritualistic behavior in support of an internalized value, and functionally effective effort in support of an internalized value, can be and often are related to support of the existing system.

Volunteer role playing is basically related to status needs. However, the type of volunteer role playing and some volunteer role playing in and of itself is relatable to needs to express support for deeply internalized values.

Just how much of disposable time is allocated to role playing that answers this need is hard to say. It tends to be intermingled with tension-relieving recreation, status-supporting volunteer role playing and pure pleasure seeking. We will not try to separate out, even tentatively, the amount of time devoted to such effort in normal stable times in a society. However, in situations of unrest and uncertainty, there is reason to expect that this form of role playing and effort allocation will increase. In times of uncertainty, we believe, people will feel that asserting support for their values is more important and protesting processes that contradict their values is equally important. We must try to establish a base for estimating how states of unrest can best be indicated and how value-supporting effort allocation is related to these states.

N_{10} - Aesthetic Experience and N_{11} - Excitement

Following Maslow's line of reasoning,[22] we suggest that when man has disposable hours that are not urgently demanded for other activities, he will take advantage of whatever pure pleasure there is

[22]See A. H. Maslow. Motivation and Personality (New York: Harper and Row, 1954).

available for him. In the case where he has surplus hours, he may actively seek pleasure and be somewhat frustrated if he cannot find opportunities for it available. The kinds of things and related needs for goods and services that give pleasure are culturally determined. If we stretch the definitions of the terms we can probably include all under the heading "aesthetic experience and excitement."

In so far as we are dealing with the question of whether or not there is enough occupational effort available to make the system operate effectively, we are not much concerned with this need. However, since there is no apparent absolute condition of surplus required before people seek some pleasure, we need to keep this in mind.

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CHAPTER IV

IMPLICATIONS FOR THE CONSUMER DEMAND SUBSYSTEM

Consumption in a Social Systems Context

This chapter is concerned with consumer demand for market-oriented goods and services. From the standpoint of postattack societal viability, consumption processes constitute an extremely important consideration. We have maintained in this report and elsewhere[23, 24] that the ability of the system to respond to the needs of people for market-oriented goods and services in the postattack environment will have a direct bearing on the manner in which survivors organize and contribute their effort toward maintaining or achieving societal viability. Certainly, the free market orientation pervades virtually every element of modern capitalistic society in America. We approach the task of analyzing consumption processes in a social system context with the realization that it is not possible, in this report, to develop an adequate theoretical and conceptual framework capable of incorporating all of the major social and psychological factors in the analysis of consumption processes.

As discussed in some detail earlier, the free market system has traditionally been expected to provide the goods and services to those with the requisite purchasing power. We emphasized that the fundamental problem, from a social systems point of view, is to achieve a balance between the wages or total incomes of people who contribute occupational

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[23] Hall, op. cit.

[24] William W. Chenault, and Peter G. Nordlie. Consumer Behavior and Worker Participation in Recovery Activities (McLean, Virginia: Human Sciences Research, Inc., February, 1967.

role-playing effort and the prices of goods and services offered in the marketplace. We also maintained that the most effective approach to achieving such a balance is to be found in a group-specific analysis. Aside from the importance of maintaining a general balance between wages and prices, it is vitally important that the various groups of people, beginning with social classes and further breaking these down according to life-style expectations, receive wages that will support their reasonable expectations for life style maintenance and that they have products available to them in the market of the appropriate types and prices.

This chapter is primarily concerned with the analytical framework necessary for disaggregating consumer demand along social class lines, and argues for a systems approach which adequately incorporates social and psychological factors of consumer demand on a group-by-group basis in society.

Social Differentiation and Consumption Behavior

It is useful, at this point, to expand upon previous discussions of social status presented earlier in this report and in our previous report,[25] since status is believed to be a crucial component of consumer behavior.

The category "people" is judged to be far too general for dealing with behavioral regularities in operational social science. The category "individual" is, on the other hand, one that leads to an almost infinite number of motivational behavior equations and is also unmanageable for societal analysis and problem solving. We, therefore, need to identify

[25] Hall, op. cit.

categories of groups of people whose behavior and motives are typically similar. Social stratification allows for such an identification. We must, nevertheless, make explicit the elements of stimuli and motivation which produce each type of typical behavior among group members.

The values of a society define a framework within which social groups are stratified in terms of prestige. Such groups are termed social classes and the hierarchical system is referred to as the system of social stratification. This is not to say that each member of a particular social group will have exactly the same motivational set as each other member, responding to certain stimuli with a completely specifiable behavior. Clearly, personality and the unique nature of individual experience are far too variegated for this to be true. We do propose that groups of people are identifiable whose motivational sets, experiences, and circumstances are generally similar and that, on the average, people will respond to certain specifiable stimuli with behavior which is also specifiable.

In an urban-industrial society such as the United States, one of the major determinants of class is occupation. Each occupation has a definite and almost universal prestige quotient associated with it in American society. Classes are largely composed of persons having somewhat similar occupational relationships to social processes. The system of social differentiation proceeds well below the general level of class, although it has much less hierarchical significance below the class level. Occupational groups can be rather clearly differentiated from one another within each class, and particular behavioral and motivational sets can be attributed to each group. Other groupings of people can also be identified within a society. Many of these partially overlap occupational groups and may include people from several different classes. A diagrammatic model including all such groups becomes hopelessly confusing and of little practical value. However, the type of

problem with which we are presently concerned determines which of these groups are important, providing for a narrowing of the groupings to some analytically and empirically manageable proportion.

The assignment of role players into prestige groups or classes is indulged in by all members of a society as a means of establishing order and regularity within a framework of differentiated prestige. The possession of membership in a particular class is not achieved by an individual--it is ascribed by society in its process of evaluation according to role types and in acting in accordance with these evaluations. In a stable society, the basic scale of values is shared throughout all classes, with "upper class" being about as clearly perceived by members of the "lower class" as within the upper class itself. People may be dissatisfied with their own position in the hierarchy, but just about everyone intuitively knows his position relative to the various major social groups and behaves accordingly.

The theory set forth to explain the why of social stratification is consistent with a large body of empirical evidence that defines the what of differentiation phenomena. Sources such as Kahl's The American Class Structure[26] and W. Lloyd Warner's Yankee City[27] series have produced some persuasive social categorizations. It was out of Warner's studies that the categorization of American class emerged in the form of six groups--Upper-Upper, Lower-Upper, Upper-Middle, Lower-Middle, Upper-Lower, and Lower-Lower. In spite of the somewhat simplistic nomenclature, this classification continues to stand up well empirically.

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[26]Joseph A. Kahl. The American Class Structure (New York: Rinehart & Company, Inc., 1957).

[27]W. Lloyd Warner (ed.). Yankee City (New Haven, Conn.: Yale University Press, 1963).

Warner followed this study with one of Jonesville[28] in Indiana, and concluded that occupation, income, and style of dwelling could be categorized in such a manner as to be useful in an equation for defining class. Havighurst[29] studied the same town in Indiana, using a technique wherein respondents grouped names of people known to them "in the group you think they belong to," which produced a good correlation with Warner's more intuitive method. A frequently replicated study by the National Opinion Research Center[30] at the University of Chicago demonstrates that Americans have a very definite perception of rank order of major occupations, and suggests class groupings similar to those originally set forth by Warner.

It seems quite reasonable, therefore, to say that in any modern industrial society there are six classes, and about 75 per cent of the population can be rather easily placed in the class group to which they belong. In America, there is also the caste line (black-white) that separates 11 percent of the population from the remainder. Within the black percentage, there is a social stratification resembling that of the majority. Of the 25 percent of the population not clearly identifiable as to class, most persons are in a state of transition between two adjacent classes.

If occupation, wealth, and life style are sufficient indices of class, they are probably not the essence of class. The essence of class is homogeneity of beliefs. There are certain beliefs, strongly held by class members and less strongly or persistently held throughout the rest of society which will be found to be the common denominator among members of a single class. For example, to the extent such a belief resides

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[28]W. Lloyd Warner, et al. Democracy in Jonesville (New York: Harper and Row, 1949).

[29]Robert J. Havighurst, et al. Growing up in River City (New York: John Wiley and Sons, Inc., 1962).

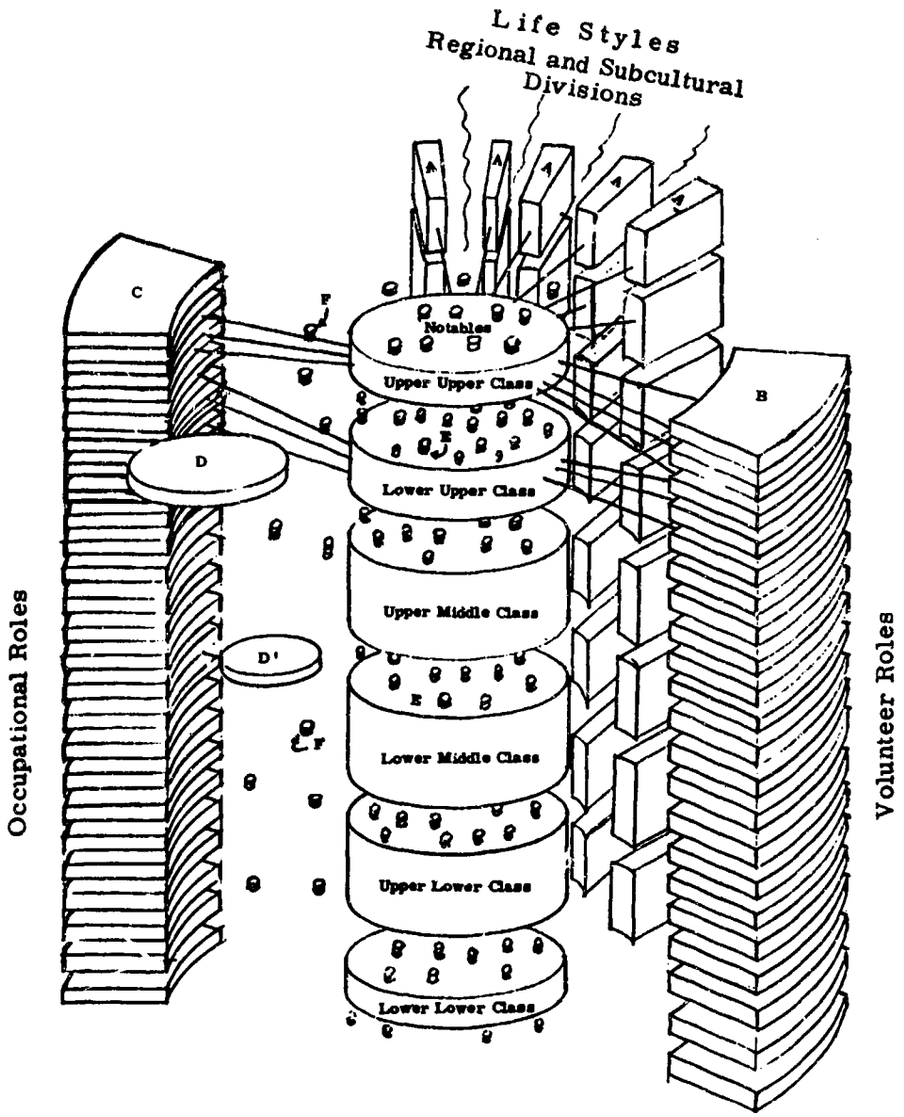
[30]National Opinion Research Council, "Jobs and Occupations: A Popular Evaluation," Opinion News, 9 (September 1947), pp. 3-13.

in American society at all, we hypothesize that noblesse oblige is a unique orientation of the "Upper-Upper" class. Alternatively, it might be hypothesized that "to the victor belongs the spoils" is a unique orientation of the Lower-Lower class. This class distinction on the basis of homogenous beliefs is important when one recognizes that the persons who are apparently members of the same class, but are widely dispersed geographically and in terms of the rural-urban continuum throughout society, do not behave similarly. The observation that Upper-Upper class small town New Englanders behave differently from Upper-Upper class urban mid-westerners has lead many to suggest that class is a distinction that can be made locally but that the class distinctions made in one locality do not identify groups that have a commonality with similar strata groups in another locality. This second proposition might be true and must be explored--as must our principal hypothesis--with empirical research. If true, the model presently under development will remain useful but will require more specific adjustment for local variations than we anticipate being necessary. Our hypothesis, however, is that the essence of class is a commonality of a certain type of beliefs and that both class and the beliefs which distinguish it will be found to pervade American society.

The question may then be raised if beliefs are similar for each class throughout the society, why is not behavior similar? We propose that a different set of distinctions, termed "Life Circumstances," combine with class-oriented beliefs to determine class behavior. Life circumstances have subcultural and related geographic particularity. Therefore, in different localities--metropolises, cities, villages, or rural areas; New England, the South, the Mid-West or West--differences in cultural history, availability of resources, transportation and markets, and differences in racial, ethnic and religious characteristics of the population

operate to give the class-related behavior of each group a distinct geographical character.

The theory of social stratification and the evidence available of its manifestation in American society leads to the construction of a model of the social differentiation subsystem in the form depicted in Figure 2. This model was introduced in the previous report in this series, but only briefly elaborated. The six classes that we believe can be identified and named according to Warner's nomenclature are represented in the center of the diagram as the six parts of the column. The six segments of the center column are shown to be unequal in thickness in response to the substantial evidence suggesting that the Upper-Upper class is substantially smaller than the other classes, and that the Upper-Middle, Lower-Middle, and Upper-Lower classes are particularly large in American society. However, no effort has been made to make these thicknesses representative of any actual numerical inventory of our society. There are several categories of people which are not clearly identifiable within a class. The designations "D" and "D'" refer to persons who are members of identifiable groups, while at the same time being outside of the normal structure of class. The designation "E" denotes individuals or households that are not now clearly identifiable within a particular class, representing the mobile population in society. Available information indicates that about 75 percent of the people in American society are fairly clearly identifiable within class. Another 10 or 15 percent, designated "E," are probably mobile and in transition from one class to another. The designation "F" is used to represent people in society, who, by virtue of their unique attitude and behavior pattern, are outside of the normal class structure. Finally, above the whole class structure are a few people designated as "notables," such as the Head of State and other high officials. One very important aspect of American



A = Life Styles
B = Volunteer Roles
C = Occupational Roles
D = Indeterminate Status
E = Mobile--between classes
F = Déclassé

Figure 2.

Social Stratification Subsystem Model

social structure is not included in Figure 2. We believe that the line between the black and the white community in America shoud be properly represented by what social science has called a caste line. The black community is substantially cut off from social mobility that is available to members of the white community.

Each segment of the class diagram and each smaller unit related to it can be thought of as a reservoir of man-hours. Surrounding the basic class structure diagram are symbols representing the different ways in which man-hours can be invested in efforts to gain and sustain status. In American society, the single most important source of status is occupation. There has been considerable research done to establish the hierarchical rankings of occupations in our society, and the column of occupational roles represents this hierarchy. One who plays a certain occupational role gains the prestige necessary to maintain the status or class position that is at the same vertical level as that occupational role in this diagrammatic representation. Yet occupation alone does not determine class, and the lines drawn from the various class segments linking occupations above and below these segments suggest that people from one class may actually participate in the occupational role of an adjacent class.

Occupational roles and inherited wealth provide disposable income to the households of each particular class. The manner in which these monies are disbursed is significant for achieving and maintaining status. Thus, occupation has a two-fold leverage on status. It gives status in and of itself, and it typically provides income which allows the person who plays the occupational role, and his family, to consume goods and services in a fashion appropriate to the life style of this class. We might, therefore, develop an equation designating class as the sum of

occupational prestige and life style prestige, but such would be incomplete. Some persons who do not have sufficient income to sustain a consumption pattern typical of their class find other means for sustaining or improving upon their class position. We believe that the third source of prestige available to men in society is to be found in volunteer role activities, and these roles are represented in Figure 2 as the counterpart column to occupational roles. We hypothesize an hierarchical ordering of volunteer roles, but research has yet to substantiate this hypothesis.

The final feature of the class diagram pertains to regional and subcultural variations in life style. We believe that we perceive a commonality among the life styles of any class combined with a regional and subcultural difference. Without suggesting that the number of divisions assigned to the hierarchical columns of life style is significant, we do believe that there are more life styles than there are classes. Studies such as Warner's Yankee City and Jonesville have suggested, for instance, that certain styles of home are a very important part of the life style of people.

This briefly sums up the ideas we are trying to express in Figure 2. It should be noted that Column C--occupational roles--is equivalent to a separate unit or subsystem in the overall systems context; and that Column B--volunteer roles--is also equivalent to a separate subsystem. The occupational role subsystem is the source of man-hours for the various producing systems of the society, including: (1) the production and distribution subsystem; (2) the educational subsystem; (3) the banking subsystem; (4) the recreation subsystem; and, importantly; (5) the government subsystem. Volunteer roles provide man-hours for several of these subsystems also, particularly the government and social action subsystem.

The area designated in this diagram as the repository of life styles is also where the output of the production and distribution subsystem is consumed; that is, in the social differentiation subsystem. Thus, the social differentiation subsystem is integrally linked to the other subsystems.

Socio-Economic Dimensions of Consumption Behavior

Probably one of the basic determinants of life style is the system of beliefs that determines for typical class members how they will divide up their disposable income. Life circumstances, which include both the availability of goods and services and the culturally established ways of expressing pride, arrogance, resentment, social responsibility, etc., determine the more specific manner in which income is spent and invested; but we expect that widely held class-oriented beliefs are responsible for the basic decisions regarding how much income should be saved or invested, and how much should be allocated to various items of consumption. This hypothesis is supported by Martineau, in his study of spending behavior:

> In a very real sense, everyone of us in his consumption patterns and styles of life shows an awareness that there is some kind of superiority-inferiority system operating, and that we must observe the symbolic patterns of our own class.... It seems that many an economist overlooks the possibility of any psychological differences between individuals resulting from different class membership. It is assumed that a rich man is simply a poor man with more money and that, given the same income, the poor man would behave exactly like the rich man. The Chicago Tribune studies crystallize a wealth of evidence... that the Lower-Status person is profoundly different in his mode of thinking and his way of handling the world from the Middle-Class individual. Where he buys and what he buys will differ not only by economics but in symbolic value.[31]

[31] Pierre Martineau, "Social Classes and Spending Behavior," Journal of Marketing, 23:2 (October, 1958), p. 123.

The consumer demand that wage earners direct toward the production and distribution subsystem is not easily explainable, except in an after-the-fact form. Extracting from overproduction and waste of one form or another, the question of what is demanded or what is desired by consumers can be answered after-the-fact by simply inventorying what has been produced. Market analysts are continually concerned with the question of predicting demand before the fact instead of analyzing what has been demanded. This concern often leads them to develop ex post facto coefficients which can be used to project into the future. In effect, market analysis is predicated on the proposition that things will continue to be the way they are and people will continue to demand and purchase the things they have purchased in the past. In a stable, established society, this form of forecasting is quite reliable for many standard consumption items. Thus, in the case of market analysis, people seldom find it necessary to explain why things are demanded, simply being concerned with what has been traditionally demanded, and forecasting on the basis of this information.

We are concerned, both from the standpoint of having a more complete understanding of society and, particularly, from the standpoint of understanding what may happen to consumer demand after a major societal crisis, with explaining why people demand the various classes of consumption items.

Predicting consumer demand is substantially complicated by the fact that there is not simply one large group of people who can be termed "consumers." We have noted above that life styles are expressions of status that people attempt to maintain because they believe that these are their proper positions in society. Different patterns of consumption are associated with different status levels. There are different expressions of status level in terms of patterns of consumption for different

regions and subcultural divisions of society, just as there are fundamental differences in life style and consumption patterns at different levels in the stratification hierarchy. Consumer demand, therefore, is the aggregate of the demands which several different groups place on the retail sector for goods and services. Each group demands a certain product, or seeks to purchase a particular product, because it has particular significance for the sustaining of their desired life style. Some consumption items are only associated with one level of life style, and a few are only associated with one level of life style in one particular region. However, most consumption items are demanded by several different groups, so that the total consumer demand reflected in the willingness to pay for the goods is a composite of the demands made by several different groups, each seeking to establish its own life style. This being the case, the demand for goods and services on the part of the members of one group is typically somewhat differently motivated than demand for those same goods by members of another group. The word "typical" has been used frequently in this discussion. This reflects our awareness that there will be considerable variation from person to person in the kind of behavior we are discussing. We do not propose that all people in a particular class behave the same way; rather, that the behavior of people in a particular class can be viewed as variations around a norm and that large deviations from the norm are infrequent.

For example, members of the Upper-Upper class will purchase Cadillac automobiles as a typical expression of a life style within a context of many other similar expressions. The Cadillac itself, for these people, is not a particularly important expression of their life style. It is only one of many items which help them express a certain desired life style. Therefore, their motivation toward the purchasing of these automobiles is susceptible to modification in response to the possibility of

more adequately expressing their life style in other areas of consumption. On the other hand, members of the Upper-Middle class may find that the purchase of a Cadillac is a very important item in their efforts to express a certain life style. They may be much less willing than the Upper-Upper class persons to exchange the opportunity to own a Cadillac for some other opportunity because this automobile has such unique significance in their efforts to express a particular life style. Demand for Cadillacs, therefore, is comprised of the demand by the Upper-Upper, the Lower-Upper, and the Upper-Middle class people. Each portion of the total demand for, in this case, Cadillac automobiles, must be explained in terms of separate systems of cause and effect expressions of motivation and behavior. That is to say, any explanation of demand for a particular item must be formulated in terms of the motives of each of the several groups of people who are placing this demand on the retail sector.

Thus, the coefficients which market analysts typically derive from looking at the economy from an historical perspective are the same kind that we would use, except that it is suggested here that the coefficients thus derived be broken down in terms of subgroups in the social differentiation subsystem and that the cause of the behavior be identified along with the identification of the demand coefficients. It is particularly important to identify cause, since cause is associated with life circumstances that the group members perceive themselves to be involved in. Under postattack circumstances, these life circumstances and the associated demand will have substantially changed for many people and for a variety of different types of people according to the way in which they have been displaced by the attack.

Immediately following an attack, class and class-oriented beliefs will remain substantially the same. For some, however, life circumstances will have dramatically changed. We hypothesize that

one of the most compelling motives affecting persons in postattack society will be a desire to maintain status. Studies such as Durkheim's Suicide strongly suggest that sudden confusion about status is highly destructive to many personalities and disturbing to all. Given this information, it may be possible to project postattack consumer demand from preattack class-oriented beliefs and attack damage information. This further suggests that a set of categories pertaining to both physical damage to sources of life circumstances and to basic postattack consumption needs will have to be included in such an assessment.

The effects of socio-economic forces on consumer behavior are revealed by the generally consistent patterns formed by relationships between variations in consumption rates and variations in socioeconomic characteristics. However, the task of analyzing the myriad factors which influence the consumption of different commodities by different groups is substantial. Standard economic theoretical, conceptual, and empirical approaches to consumer behavior have dealt primarily with consumers' purchases in response to variations in income and price. Such theories have been criticized quite widely by social scientists for their failure to incorporate many of the important social and psychological considerations which are known to underlie observable economic behavior related to consumption processes. The exclusion of some or all of these factors in these formulations of the consumption function is attributable, in large degree, to the complexities involved in incorporating such factors into manageable analyses. Smelser defines the problem of developing adequate theoretical formulations of the consumption factor which would incorporate key social structural variables:

> We would conceive that consumers classed according to various sociological dimensions... are differentially involved in social structures; these structures impinge on their spending patterns... Thus, for any given

> consumer, we would... posit certain levels and kinds of spending and saving that symbolize his involvement in social structural contexts. Then, by aggregating these attachments to such contexts, a consumption function, or... a series of consumption functions, could be reproduced for incorporation into various theories of demand. Unfortunately, such a program is in the visionary stage.[32]

As we presented the concept of social class above and related it to the purchasing of goods and services, we are aware that some gross oversimplification is involved. Several dimensions are either collapsed or ignored. For instance, we have identified class as a family rather than an individual attribute; but, clearly, wives (working or not) and children are dependent for their class status on the husband's occupation, and, like the husband, on the life style exhibited by the family. Still more important in determining life style and related consumption practices is likely to be age grouping or stage in the family life cycle. Certainly, couples over 65 years of age have vastly different consumption needs and demands than do couples in, for instance, the 25 to 35 age bracket. Another probable important mode of differentiation which involves class itself, rather than differentiation within class, is the social history of the senior family members. As noted above, occupation alone does not determine social class; life style is at least an equally important factor. The capacity for a certain class-related life style must be learned and is typically learned by children growing up within a particular class. However, socially mobile people from a lower class do learn the life style practices of the class into which they are moving. During this time of transition, these people are between class, and their life style can be roughly referred to as intermediate between their two classes

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[32] Neil J. Smelser. The Sociology of Economic Life (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1963).

of reference. We may hypothesize that life style expressions and loyalty to the belief that determines them will be a function of the number of years the family head has occupied the class-related occupation if his own class origins are not of his present reference class. Further, some occupations are intermediate between classes, and the class origins of their possessors are likely to be determinative of which class a family belongs to, as well as which life style is aspired to.

The above complex, yet oversimplified, concept suggests the degree of conceptual and theoretical detail that is possible and probably necessary to the construction of an adequate model of the consumer demand subsystem.

Additional variables can be introduced into the analysis almost without limitation. Significant variations in the consumption of many different categories of goods and services continues to be documented quite extensively, particularly by the U.S. Bureau of Labor Statistics in their Consumer Expenditures and Income series. Each variable is important in its own right, but takes on added value in the context of a conceptual framework which organizes these indices so as to discover the interrelationships and relative weights of these factors in a social class and life style context. Certainly, consumption levels and types must be disaggregated along such variables as: (1) degree of urbanization (urban, rural nonfarm, rural); (2) regionalization; (3) disposable income (and other "economic" factors such as net worth, stock of liquid assets, durable goods inventories, credit availability, etc.); (4) occupation and age of family head (noted above); (5) race; and (6) education. Consumption goods categories must also be appropriately disaggregated. For many purposes, it is not sufficient to deal with such broad categories as "Food," "Shelter," "Clothing," "Medical Care," "Transportation," etc. The subsystem model must be capable of incorporating subsets

within these broad consumption categories if it is to achieve the necessary level of detail.

It is not possible within the constraints of this report to work through even one broad consumption category, for instance, food needs, in a manner which would demonstrate the utility of our approach to the analysis of consumer demand. The ingredients of an adequate conceptual framework, as well as the empirical documentation, are attainable for a major subsystem model-building effort. In our opinion, this effort would be highly desirable in the further development of the social systems model.

We restate our belief that in postattack society people will continue to try to express some life style orientation related to the status that they believe themselves entitled to and involved with. Thus, their felt needs and their motivations associated with these felt needs will be directed toward the achievement of consumption ends extending somewhat beyond the barest levels of survival. We believe that an adequate differentiation of people both in terms of preattack social stratification and in terms of types of dislocations suffered by people will provide some important inputs toward predicting the demands that they are likely to make on the retail sector in postattack society. The modeling of the intricacies of consumer demand processes--understanding these demands, their sources, and their significance in terms of sustaining legitimacy in society--will contribute to the management information system necessary to successfully manage the society through to recovery.

CHAPTER V

IMPLICATIONS FOR THE INSTITUTION-BUILDING SUBSYSTEM

There is a basic structure of rules and laws underlying the pattern of action that constitutes process in society. We have called the basic complex of rules and laws of a society its institutions. This is a somewhat specialized definition of the term institutions and we discussed the rationale for it in the previous report in this series. The rules and laws are normative for behavior. They have the quality of "ought" about them and are supported by formal and informal societal sanctions. Yet they are not definitive for behavior. In any typical action situation, an individual takes into consideration the rule or law that specifically applies in the context of all the demands and opportunities that present themselves to him as he tries to satisfy his needs. The rule or law is a very important determinant of behavior but it is by no means the sole determinant of behavior. In a typical situation governed by a particular rule or law, behavioral responses will be distributed in frequency along a "J" curve that is half of a normal distribution curve. The peak of the curve will represent a high frequency of conformity; along the slope, frequencies of partial conformity are represented; the tailing off of the curve represents the frequency of non-conformity. This concept is discussed in more detail in the earlier report. The important point is that rules and laws do have a very significant effect on behavior. And rules and laws are created by people in the social process that we have called institution building. The institution building process is largely governmental process and we can usefully analyze the process by examining our own national government.

A fundamental thesis of this analysis is that societies exist as means of coordinating the efforts of the people of the society in the satisfying of their needs. Rules and laws are the agents for coordination. A governmental structure that does not provide the institutional guidelines for satisfying the basic needs of its people will fall. Change is the order of modern urban industrial society (not all society; dynastic Egypt lasted for almost 2300 years without much fundamental change). As various new tools, new uses for raw materials, new means of communication and new role playing opportunities develop, and as productivity of material goods increases and policy decision work their way over time from inception to consequence, new forms of coordination for satisfying needs seem to be required. Our government is constantly in the process of producing rules and laws in efforts to continually retune the society. Much of this is fine tuning; the making of minor adjustments in the tax laws to prevent imbalances in the established status structure, etc. Occasionally, some significant coarse tuning is attempted, such as the 1954 Supreme Court decision on school segregation. (It should be noted that this particular piece of coarse tuning was a response to efforts of some people to improve their status and efforts of others to gain value-related personal satisfaction [Needs 5 and 9] that had consumed goal-oriented effort within social process over a period of at least fifty years.)

Governments are always made up of people--occupational role players. Various methods are used in different types of societies for the choosing of these people. The ideology of the society determines the process. Regardless of the process, the leadership only serves if it keeps in touch with the people in terms of their experiences of need satisfaction and provides the basis in rules and laws for basic need satisfaction. The particular means subscribed to for choosing our leadership is what we call democratic process. One of the great merits

of our process is, we believe, that it is particularly effective for keeping the government in touch with the needs satisfaction being experienced by our people. The term "Democracy" is judged to mean that such a government is more responsive to the needs of its people than other forms of government. Whether this is so or not might be argued, but Americans believe it is so, and this belief, as related to our belief in freedom and individual rights to dignity (life, liberty and the pursuit of happiness) forms the basis for the legitimacy of our government. Max Weber called this a "legal-rational" form of government,[33] because it presumably uses rational means to arrive at definitions in law for satisfying our needs and at the same time actualizing our values.

Briefly described, the major elements of our law-making system at the national level are the executive, in the form of the Office of the President of the United States; the legislative, in the form of the Senate and the House of Representatives and their supporting services; the bureaucracy in the form of the staffs of the various departments and agencies that have regulatory powers and responsibilities for developing guidelines for and administering laws; and the federal court system capped by the Supreme Court. Each of these elements has a semi-autonomous character, though the semi-autonomous nature and extensive power of the bureaucracy in giving specific functional definition to rules and laws is not as well recognized as are the functions of the other elements.

The legislature is structured to be most responsive to the needs of the people as a consequence of the elective processes involved. Making use of these processes, we typically choose legislators from among ourselves who seek this form of occupational role status and are so situated

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[33]Max Weber. G. Roth (ed.) Economy and Society. Totowa, N. J.: Bedminster Press, Inc., 1968.

in society that they have the means to participate in the somewhat costly and time-consuming process of office-seeking. We typically choose persons who have, prior to their political office seeking, considerable status, and people with whom we can, in some significant way, identify. The need to create an image with which a majority of the voters can identify keeps a legislator sensitive to the need satisfactions being experienced by a majority of the people, in theory, and probably substantially in practice.

In developing more detailed conceptual modeling of the national legislative element of the institution building subsystem, we have classified the legislators typically found in our Congress into four categories. One relatively small group is classified as "Arch Intellectuals." These are people who are devoted to thought-out ideologies buttressed by specified ideals. They tend to be sophisticated in their pronouncements, but severely limited in their effectiveness in normal law-making processes, because of their absolutist orientation. They tend to be incapable of considering that other people's positions or others' uncertainty about their position has any merit or dignity and, therefore, they are largely incapable of cooperating with coalitions that develop enactable legislation. Another relatively small group is the "Back Benchers," made up of three subgroups. The back benchers are characterized by not actively participating in the formulation of legislation and often by avoidance of a specific position or by being unavailable at times of voting. These include (1) the "Old Timers," for whom all issues are reduced to a simplistic morality; (2) the "Fence Straddlers," whose single-minded concern is to present a favorable image to their constituencies and not to rock the boat; and (3) the "Anxious and Indecisive," who are uncomfortable and insecure in their surroundings and just don't know what to do. The latter are very likely to be short-termers. A third and fairly

significant group are the "Operators." These men have sought public office as a means for personal material gain and this motivation dominates their legislative behavior. They tend to be clever, manipulation-oriented men who take pains to present a favorable image to their constituencies while selling their votes to the highest bidder.

Fortunately for democratic process there is a fourth and largest group, termed the "Functional Decision-Makers." These men have status motives like the others, but a significant component of their motivation is their need for value-related personal satisfaction. There is genuine concern for actualizing their values through legislative process. Their values are basically those of their constitutents, for that is what makes such open-faced men attractive to the electorate. They are not necessarily the most brilliant, but they are basically honest and intelligent. They do not necessarily understand societal processes, but they try to understand them and they act on this understanding. In the aftermath of a crisis like a nuclear attack, it will be important that such men have been previously provided with the best possible background information for their decison-making. Generally these are the men whose efforts are decisive for legislative process.

In our form of government, with an independently chosen and personally powerful chief executive who has a limited term of office, we can expect that the chief executive will typically have the characteristics of Functional Decision-Makers in the legislature. His motivation is almost certainly status motivation. It would seem unlikely that anyone would take on such a consuming occupational role without expecting substantial reward. The status rewards for this job are optimal. The President becomes, and remains, even after he leaves office, a notable at the very top of the status column. Along with this singular status position, he finds himself the focus of tremendous societal pressure, demanding

performance in terms of actualizing values. It is doubtful if a real man in the real world can effectively resist these pressures and, therefore, it is true and would continue to be true in a postattack situation that the job, to a degree, makes the man. The question of his performance, therefore, is only a question of how well informed he is; how well he understands societal process; and where, within the spectrum of American values, his own values lie. In a generally homogeneous society, it can be expected that the Presidential values would reflect the middle-range of the people's values in most value dimensions, being more or less acceptable to the people across the whole spectrum. In these circumstances, performance in contributing to law-making is related to the adequacy of the information he receives. In a polarized society, a substantial body of the population will necessarily subscribe to some values and beliefs outside the scope of those held by the President. In these circumstances, Presidential performance alternatives are between rebuilding consensus and enforcing the will of a majority on a significant minority. One of the most eloquent documents in our history--Lincoln's Gettysburg Address--deals with the necessity for a significant emphasis on the latter, even while attempting the former, if a society under a single governmental system is to survive. The question of whether or not we have a substantially homogeneous society or a somewhat polarized one at the time of nuclear attack would be of considerable importance in guiding a chief executive in issuing the executive orders necessary to optimize our chances for sustaining viability.

The bureaucracy is somewhat less sensitive to popular expressions of need than the elected officials. Only the very top levels of the bureaucracy are subject to direct executive appointment. Most others enter through a personnel system somewhat touched with party politics but basically concerned with professional qualifications in a field. Once

granted a permanent appointment in the system, the specialist is relatively secure from the winds of popular pressure. Yet this security is only relative and, as in all large complex organizations, particularly those that do not produce a competitive product, there is a premium on not rocking the boat. The essential characteristic of the government bureaucracy is, therefore, conservatism. In times of stable societal operation, this probably serves the useful purpose of dampening out transitory excesses in popular emotion. In times of major crisis, such as managing society through a nuclear war, this conservatism may be a dysfunctional devotion to the status quo ante. The professional expertise of the bureaucracy would be very important in this instance, but conservatism could be very dangerous. It is an important task for OCD planners to help educate other parts of the government with respect to the true nature of the problem and possibilities.

The courts play a role similar to that of the bureaucracy in interpreting rules and laws, but only where bureaucratic interpretations are defied or otherwise protested. The emphasis on precedents in jurisprudence assures that judicial opinion will be basically conservative. The life tenure of a federal judge, however, gives the judge much greater security than that enjoyed by a bureaucrat. This, and the social forces that impinge on his prestigious position, operate to allow the judge to exercise considered judgment based on basic values. In fact, much of the effective social reform that is developed in our society is the product of judicial opinion that gives precision to vague laws and confusing guidelines. Judges themselves tend to have the same characteristics as legislative Functional Decision-Makers. This process of developing clear and precise rules and laws through the courts is a very slow one, however. Some consideration to speeding up this process as a contributor to management of society through crises might well be a part of planning for post-nuclear attack.

This is the basic system for "tuning" and adjusting our society within the framework of basic normative definitions of our political and economic ideology. Within this system, the rationale for making adjustments is generally argued on the basis of the basic values that underly societal consensus. Many other forces derived from status needs of various groups, other tension release needs of groups and a general need of the people for societal security enter into the process. Since the existing societal system does provide basic need-satisfaction opportunities, including status, tension release and societal security for the large majority of the people, changes are slow in coming. Few people are willing to risk a societal structure that provides satisfactions above minimal viability for a "better world," if it means passing through the uncertain process of major societal upheaval. Upper-level tensions produce social currents that affect the institution-building processes and gradually bring some societal change, but in a viable society, the process takes a long time.

We have discussed earlier the concept that there are two basic levels at which need dissatisfaction can be experienced. The first, which we have called the upper level, involves discomfort and tension that is not cumulative from day to day. The second is the result of more severe forms of dissatisfaction and results in cumulative frustration. The first level motivates persons otherwise inclined to volunteer role playing, or political occupational roles, to seek changes within the system. The second motivates all the people experiencing it to agitate for changes of the system itself. Conversely, we argue that people who persistently agitate for fundamental changes of the system itself are suffering one or another form of severe basic need satisfier deprivation.

We will further argue that the form of the deprivation and the nature and object of the agitation are not necessarily directly related. The agitator himself may not be aware of the nature of his frustration. For

example, people unfamiliar with primary group theory might not recognize that a situation that made them unable to establish geographic places of reference for primary group activities was the source of the great frustration they were experiencing. Major need-satisfier deprivation causes, we believe, an emotional state of frustration, not necessarily a conscious awareness of of what it is that the person is deprived.

Believing this to be true, we therefore define a viable society in terms of achievement of satisfaction that lifts the vast majority of the people above the lower level of experiencing needs-satisfier deprivation for all of their needs. We suggest that, when this is not the case, there is agitation against the system; and that when such agitation takes on major proportions, the societal system is torn apart. In short, this is a theory of revolution.

As we have suggested earlier, we do not believe any society has ever reached the state where some of its members were not experiencing severe deprivation and the motivation to agitate. A strong and determined show of force on the part of the government with the clear support of the majority can contain such agitation and turn the group's frustrations inward upon themselves. When there is significant sympathy, based on societal values, for the deprived group, the government will have difficulty exerting strong and determined force. This will free the deprived to agitate and create tension due to inadequate societal security satisfaction for the majority. Leaders will find themselves pressed to identify the true causes of the deprivation and to do something about it. This may not be easy, but changes in rules and laws will be continually attempted until something seems to work. A particular, as yet undetermined, level of agitation can be contained within a basically viable society in this manner.

If, however, major groups in the society experience severe deprivation and turn to agitation, the results will be different. This kind of deprivation and agitation has the cumulative effect of reducing the satisfaction

of societal security need for all people so that there will be a general climate of loss of confidence in the system. This is the classic situation in which a charismatic leader can, and does, emerge.

A charismatic leader is a person motivated by desires for very high social status and strong needs for value-related personal satisfaction through effecting large-scale societal change, and who believes that he has both a plan for a basically reformed (in terms of his values) society and the ability to inspire confidence in a severely agitated people that he can make his plan work. People experiencing serious deprivation and motivation to agitate find solace in being able to direct these energies toward a goal. The goal of changing the government and relinquishing it to someone who is believed to have the capability to reform the society and remove the causes of deprivation can provide the needed outlet for agitative activity. When this occurs in a democracy, the democracy generally disappears and is replaced by a totalitarian state. If this should happen to us in the aftermath of nuclear war, it seems axiomatic that we, as a people, would have lost the chance to experience expressions of the very values we would have entered the war to preserve. Further, this shifting to a totalitarian system under a charismatic leader might well become a permanent state. The routinization of charisma over time does not seem to typically lead to democracy.

The success of a charismatic leader seems very probably to have the quality of a self-fulfilling prophesy. When people believe in a leader they give their energies and their creativity to make the system under his leadership work. This is more or less typically the crucial ingredient for nominal viability in any society. It is in this context that there is a paramount need for a fairly detailed set of recovery plans, supported by knowledge of their content and rationale, to be spread throughout the legislative, executive, the bureaucracy and the courts.

CHAPTER VI

IMPLICATIONS FOR RECOVERY PLANNING

The basic proposition of our societal systems analysis is that the system exists to serve the needs of people. We have operationally defined the fundamental needs of people and the elements and subsystems in society which serve the various needs, and speculated as to the manner in which these elements and subsystems might be damaged by nuclear attack. Using the basic needs as a foundation for organizing our analysis, we can briefly review the possible or probable conditions of basic elements and subsystems of society in a postattack environment and determine what minimum standards of operation of each must be maintained if basic needs are to continue to be satisfied. We might think of a summary demand or requirements schedule as the description of the postattack societal system which postattack management should be organized to produce.

We have noted that the crucial element in rendering societal systems functional and viable is human effort, and have presented ideas concerning the amount and quality of human effort which will be available in the postattack world. Management plans can and should be directed toward best identification and utilization of available human effort resources to serve postattack needs.

An inventory of the elements and subsystems of society required to provide for human needs would consist of the elements listed in Chart 1.

Chart 1.

Elements and Subsystems of Society
Related to Human Needs ??

1. Food Needs Requirements:
   a. Food cultivation and husbandry; auxiliary--fertilizer industry, seed industry, irrigation.
   b. Intermediate and final food processing.
   c. Wholesale and retail food distribution centers.
   d. Food-related transportation:
      - commercial between points as above;
      - private, to and from retail stores.
   e. Food handling and preparation, appliance industry.
   f. Fuel supplies for food preparation.
   g. Management information system for guidance of each unit manager of elements in the system.
   h. Employment opportunities for consumers to gain purchasing power for food.
   i. Societally established and managed monetary system.

2. Water Needs Requirements
   a. Water purification systems and auxiliary purification chemicals industry.
   b. Water main distribution system.
   c. Plumbing materials, supplies and skills.
   d. Municipally controlled water system management approaches.

3. Protection from the Environment:
   a. Temperature maintenance needs required:
      1) Housing construction and repair maintenance industry.
      2) Heating and fuel supply industry.
      3) Commercial building and repair industry.
      4) Clothing industry.
      5) Legal system for defining and sustaining property rights.
   b. Health preservation needs requirement
      1) Medical-services-hospital care personnel and facilities and auxiliary drugs.
      2) Sanitation systems.
      3) Pure food and systemic protection against epidemics (Public Health Service, other governmental agencies).

4. Primary Group Needs Requirement:
   a. Housing.
   b. Transportation.
   c. Communications (including help in missing persons location in emergencies).
   d. Neighborhoods (geographic places of residence-clusters for specific social groups).

- continued -

Chart 1, continued.

5. Status Needs Requirements: a. Differential occupational rewards system b. (income differential). b. Differential quality of goods and services available in the marketplace. c. System-related volunteer organizations. d. Managed monetary systems. e. Adequate employment opportunities.	7. Tension Release Needs Requirements: a. Natural space. b. Recreational facilities. c. Entertainment facilities.
6. Societal Security Needs Requirements: a. Money supply management. b. Employment opportunities. c. Property and personal rights: 1) Functional civil judiciary. 2) Criminal justice system, including: - police - courts - corrections. d. Health care facilities. e. Access to political process. f. Societal-affirming ritual.	

Role of the Inventory System

The basic question for recovery planning concerns the manner by which plans can be developed such that these elements will all function at a level appropriate to the surviving population in their survival conditions. This involves not only knowing what the needs of the survivors are and planning to meet them, but also knowing what human effort resources exist among the survivors and planning so as to utilize these resources most effectively.

The first question to be asked of postattack management planning is: do we have a system for inventorying postattack survivors and postattack resources? The network of local, state, and regional civil defense directors and headquarters and the nodal network inventory system developed by the systems analysis section of the Office of Civil Defense research directorate[34] would appear to provide the basis for such an inventorying system. A review of management planning for postattack survival and recovery should determine just how the inventory is to be performed and how it is to be communicated to a central agency.

The question of what is to be inventoried leads us back to the needs and the societal elements for satisfying needs. A fundamental information requirement is knowledge of the approximate number of survivors by location. Local civil defense and regional plans are expected to provide for emergency shelter, feeding, and medical care in the immediate postattack situation. Centralized civil defense agencies can provide only limited amounts of assistance in these areas. Local officials will be expected to use local resources,

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[34] Abner Sachs and Judy A. Timmermans, Economic Structure of the United States Using the County as a Functional Base," Research Paper P-511 (Arlington, Va.: Institute for Defense Analyses, April 1969.

both human and material, to provide for immediate need satisfaction in their particular localized situation. Even at this earliest phase of local survival effort, certain guidelines derived from considerations of needs can be usefully employed. Food needs will be of immediate concern and local authorities will have to be organized so that they can locate, control and equitably disburse available food supplies. Since private transportation can be expected to be somewhat limited either because of vehicular damage, road damage, or inadequate fuel supplies, it is desirable to attempt to provide food outlets within walking distance of each major group of survivors. Obtaining food will absorb more manpower in the postattack environment. In fact, manpower will be a key limiting factor in recovery, so that organized efforts to simplify food provision activities for survivors is in the best interests of all members in society. The converse of this is that in relocating people after an attack, local leadership should take into consideration its ability to establish food distribution points near the relocated people.

Implications for a National Feeding Plan

There is an additional question about the form of the feeding program. It has been suggested that community kitchens can be an effective form of emergency feeding. Information from World War II and from civil disaster situations support this proposition. It would be reasonable for local leadership to establish community kitchens for feeding major groups of people. This presupposes adequate planning and management and knowledge of survivor locations. While it has some potential efficiency associated with it, our analysis of the importance of primary groups and the importance of the family meal, as a reference point for assembling the family primary group, suggests that it is highly desirable to provide a basis for at least part of the feeding to be done by and in these primary groups. We expect that this

support of primary group interaction through the planning of the feeding program will contribute to the quality of effort (largely occupational effort) that group members expend in support of the system.

From the standpoint of regional and national management plans, the problem of food is one of production and distribution to major warehousing points. Studies already performed in Civil Defense research and the nodal network inventory system should provide a basis for regional and national estimations of food supplies each locality is likely to have available under varying postattack situations. With this information, and actual attack information, the central government can estimate the time available to get the food production and distribution system reestablished. The inventorying of food producing resources and reserve food stocks is an item almost as important as the survivor inventory.

The actual growing and husbandry of foods is not likely to be a major problem. We have analysis in the OCD research work that guides us here and can further inform this decision. Probably the simplest operational approach to this problem would be a protocol suggesting that people in each locality put top priority on expending whatever effort is necessary to sustain surviving agricultural industry and resources. Agricultural manpower requirements are sufficiently small such that this orientation is unlikely to produce much wasted effort in overproduction. On the other hand, the food processing industry may be much more severely damaged than primary agriculture. Food processing effort constitutes a somewhat more significant portion of total utilized human effort than does direct primary agricultural effort. Postattack protocols can usefully focus on getting essential food processing industry--essentiality being determined on the basis of the HEW-proposed minimum adequate diets--back into operation at levels appropriate to the needs of the surviving population. Grain mills and bakeries are key

food processing industries. Grain milling requires only a small investiture of human effort in proportion to output. The possibilities of substituting other milling equipment such as feed mills, and even cement mills, for grain milling, suggests that the necessary facilities are likely to be available. The crucial question will be the transportation of grain to mills and of flour from mills to major centers of surviving population. Thus, this aspect of the feeding problem is primarily a transportation problem. The indicated management approach seems to be the location of grain supplies and of needy populations and the establishment of grain mills at points within an operable transportation network that will get the food to the people. As a corollary to this, it seems reasonable to make the reestablishment of bakeries a matter of high priority in each locality.

Milk, fruits, and vegetables do not require the same kind of processing as grain. Milk pasteurizing facilities are widely dispersed and, by virtue of semirural location, not highly susceptible to attack damage. Supply of milk, fruits, and vegetables to augment the basic grain diet is primarily a matter of organizing the transportation network.

Processing of other foodstuffs in undamaged facilities is a desirable adjunct to the feeding plan. Wherever local human effort is available, and undamaged facilities and raw materials exist, it is reasonable for local authorities to encourage normal food processing activities until such time as very large inventories accumulate or central government advises otherwise.

Role of Management Information System

With normal marketing channels severely disrupted, and the normal indications used by managers to guide their allocations of resources to production processes largely blurred, there will be a need for a national management information system. This will involve estimating total food needs based

on the surviving population size, estimating total food production and processing capability based on a summary of local inventories, determining what transportation linkages for relieving imbalances between production and need can be most easily reestablished, and advising fortuitously located producers and processors to expect substantial markets, while recommending to those who can produce an excess that is not easily marketable to cut back production. In attempting to operate such a management information system, while preserving private ownership and management of means of production and processing, mistakes will be made. Controls will be necessary and the most effective controls will probably be those over raw materials available to producers and processors. A national feeding plan must take all these factors into account.

There must also be some systematic procedure for distributing the food. A per-capita rationing system may be desirable in the more disorganized areas. However, this itself takes planning and organization and is subject to many injustices and abuses. The market mechanism for the distribution of consumer goods in general and food in particular is a fundamental element of our societal system. This not only requires that people have conveniently located retail outlets, but also that they have an appropriate supply of stable currency to use in the market exchange process.

Means of Exchange

It seems particularly likely, if we look at the postattack situation from the perspective of the individual consumer, that the biggest obstacle to a successful market distribution system will be lack of stable currency. The transaction money that individual households have on hand in the immediate postattack situation will not be great. Records of savings and of owed wages are quite likely to be destroyed. From the standpoint of many

individuals and families, the past history of their family finance plan may be wiped out; their consumer economics starts from zero after the attack.

Others will be much more fortunate. Records of their savings and investment may be intact. However, the real capital goods that serve, through the banking and investment procedures of our financial system, to give content to these records may be destroyed. Thus, even persons who have escaped direct effects, whose homes and neighborhoods are intact and whose savings and investment records are preserved, may be without a purchasing power that has long term meaning.

One of the crucial questions to be dealt with in the immediate postattack world is the question of establishing a stable means of exchange for use in the marketplace. This has meaning not only for making the food distribution system work, but for all other consumer purchasing processes. On the other side of the flow diagram, it also has crucial significance for the process of allocation of worker productive effort. Men work for several reasons, an important one of which is to gain wages to be used as a means of exchange for goods and services. Wage levels have, historically, served as an important means of attracting capable people to areas where society needed them most. Men must gain the credits (money) necessary to participate in the marketplace somewhere and the major source of these credits in all complex economies is wages. Even the most socialistic of complex economies depends on this process. The purchasing power made available through wages and the prices of goods bear an important, but delicate, relationship to each other. The attack will have disrupted this relationship.

Just how well contingency planning has been developed to deal with this situation is in doubt. The possibility of needing some fairly radical currency reform and an issuance of a new postattack currency seems significant.

Redefinitions of ownership of capital goods along preattack lines with some indemnification for survivors who have suffered major loss may be a quite inadequate measure. It might be reasonable to consider some more far reaching measures that have more the quality of starting over from a new postattack base line about them.

We have entered into the discussion of the problem of reestablishing a postattack market system and of its relationship to money and currency policy only from the standpoint of the food problem. But this problem runs through many of the needs-satisfying subsystems. Solving or not solving this problem will be crucial to the meeting of people's needs for societal security. It therefore seems particularly important that a preattack plan for defining property rights and for establishing stable currency in the postattack world be well developed at the operational level.

Concluding Note

The mode of analysis, built around the concept of needs and the systems model of society, as briefly suggested here, is one that appears to be crucial for the evaluation of existing postattack management plans and for further development of these plans as necessary. A great deal of work remains to be done. Unfortunately, the scope of this study and its funding cannot support the development of this analysis. It is only possible here to attempt to point the way. In the earlier report in this series, we touched on manpower allocation as a postattack management problem. This must be integrated into the overall approach. If some substantial further efforts are made along these lines, integrating what we have already learned in many relevant OCD studies, a basis for an integrated postattack management system can be laid down. Existing plans can be examined with reference to this system and provision can be made for ameliorating inadequacies.

CHAPTER VII
RELATED DEVELOPMENTS IN THE SOCIAL SCIENCES

The basic proposition of this study is that society is a system made up of a number of subsystems. In the earlier report, this concept is presented diagrammatically. The basic subsystems of society were identified as the economic, the social, and the political. In diagrammatic form, the economic subsystem was presented in terms of a number of its elements, including the production network and the marketplace. The social subsystem was essentially "people"; the political subsystem, "institutions," suggesting the product of its operation. The various subsystems are shown as interdependent, related by clearly identifiable linkages. Each subsystem is characterized by inputs and outputs, which link it to the other subsystems; they are measurable factors and are reducible to a single common denominator in analysis of system functioning. This is also true regarding analysis of the various subsystems.

The total system, therefore, was conceived as being made up of the complex of elements that are linked to each other by inputs and outputs, each of which is measurable, and each of which, through a process of using conversion factors, can be equated to each other input or output of the system. In short, it was proposed that society can be represented in the form of a servomechanism system. It was further argued that society must be understood as a total system if major problems in society, including massive disruption due to nuclear attack, are to be effectively studied.

Is the concept of the need for and possibility of such a model acceptable and supported in contemporary social science? The answer has been given by a number of distinguished social scientists in economics,

political science and sociology. Professor Ithiel de Sola Pool recently described how he has developed computer simulation techniques for use in exploring and interpreting election information.[35] In the process of simulating aspects of the political process, Professor Pool has considered the problem of simulating society as a total system. He says:

> In short, there is no a priori reason why total society simulations should be impossible. They are not ruled out by the qualitative character of much of our understanding of social process; they are not ruled out by the complexity of the reality they represent, nor by the number of subsystems they encompass.[35]

He further notes that this process is extremely difficult, because we lack sufficient definite information about the various elements and linkages in the system as a whole, and in the various subsystems that we wish to deal with, and continues:

> As a practical matter, the way to go about deciding whether a problem is ready for computer simulation is to try to sketch out with pencil and paper the relationships among the variables to see how far we think we can state them in a rigorous manner. A flow chart is a commonly used device for representing such a set of relationships as is a series of simultaneous equations.[36]

In the previous report, both a flow chart and a series of simultaneous equations which represented the variables of the societal system were presented.

Professor Walter Isard of the Wharton School is an economist who has long devoted himself and his research efforts to the understanding of society as a system, and has written several volumes discussing the

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[35] Ithiel de Sola Pool, "Candidates, Issues, and Strategies," in Samuel Z. Klausner (ed.), The Study of Total Societies (New York: Doubleday and Co., Inc., 1967), p. 54.

[36] Ibid.

interdependence of the various elements of society. Generally following his discussion of each element, he presents the discussion in equation form. As one works through Professor Isard's latest book,[37] he will recognize that his approach is somewhat different from ours. And yet, the general idea of relating the various subsystems and elements to each other, systematically, is the same, and many of the concepts are the same. It may fairly be said that Professor Isard recognizes the importance of general theory, while his work remains essentially a work of general and regional economics. In his own recognition of this, Professor Isard says:

> Our general theory can at most be considered a beginning. It surely opens up more ground for exploration than it has satisfactorily covered.[38]

In the essay entitled, "Model of Society--The American Case," the distinguished American sociologist, Robin M. Williams, Jr., discusses the question of developing a societal systems model and of developing subsystems models within that system. Professor Williams' book, American Society, has become a modern classic of analysis of our society. In this more recent essay, Williams raises the question as to whether there was an implicit model in his mind as he wrote American Society. He states that it is inevitably true that he had such a model in mind, and yet recognizes that it was, at that time, more implicit than explicit. Williams recognizes that a systems model of society is an important tool for dealing with American social problems, or for that matter, with any country's or with international social, social political, and socio-political economic problems. On this subject he states:

> One of the pointed questions raised by the topic under discussion is whether or not social science has now reached a point at which it is possible to prepare a general model

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[37] Professor Isard's latest book, is entitled, General Theory, Social, Political, Economic, and Regional, with Particular Reference to Decision Making Analysis (Cambridge, Mass.: MIT Press, 1969).

[38] Ibid, p. xii.

> for American society or--an even more ambitious goal--for any society? The answer hinges upon how comprehensive and exact our requirements are for a "general model." If we require exact measurements of thousands of variables in a form suitable for complete mathematical statement in equations subject to determinant solutions--then clearly we are not ready nor is it likely that we will be for a long time to come. But if we are willing to descend to current realities, it is reasonable to say that partial and approximate models, partly quantitative, partly qualitative, already are within reach. To reach them, however, requires major effort.[39]

In relating Professor Williams' position to the model proposed here, we must note that while the proposed model strives for a complete mathematical statement, this necessarily requires--as he implies--that a good deal of the quantitative coefficients used will have the character of educated guesses. The model presented here is in fact partly quantitative and partly qualitative; a fully quantitative model is the goal. Yet the need to develop means for managing society prior to, through, and following a potential nuclear war is here now, and it seems desirable to draw whatever implications we can from the model in its present state of development.

Williams has also pointed out that "For posing questions of societal policy in a particularly meaningful way, a social-system model is of great and increasing usefulness."[40] Another sociologist who sees systems social science as being the most promising approach to social problems that we have available is John H. Kunkel. In his book on Society and Economic Growth, he uses input/output and feedback concepts to provide the framework for dealing with program planning for underdeveloped countries. Taking a behaviorist's view of man, he discusses the kinds of inputs and the kinds of interpretations of inputs, outputs, and feedbacks that take place for different

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[39] Robin M. Williams, Jr., "Model of Society--The American Case," in Bertram M. Gross (ed.), A Great Society? (New York: Basic Books, Inc., 1966), p. 45.

[40] Ibid., p. 39.

people in different settings. By using this form of analysis, he is able to suggest the way in which some inputs to people in underdeveloped situations are effective, and ways in which these kinds of inputs become ineffective or counterproductive because the system into which they input signals is different from the one assumed by the person trying to change the situation. In arguing for the desirability of a systems analysis approach to society, Kunkel says:

> We can simplify problems of analysis enormously, without violating the empirical data in any way, by postulating that any set of variables selected for description and explanation may be considered a system of behavior.... The variables which are included in a systems analysis should at least logically appear to be part of a more or less distinct, observable entity in the empirical world.[41]

The point that Kunkel emphasizes is one that we share and have tried to make a part of this systems analysis.

Kunkel has borrowed a portion of the quoted discussion from David Easton, a political scientist of the University of Chicago, who has used the concepts of systems analysis to provide a basis for developing a general framework for political theory. In a series of works, Easton has pointed out that political science today is substantially lacking in general theory, and he has used the concepts of systems analysis to provide a basis for developing such a theory.

Professor Easton focuses on the political system as a subsystem and discusses how it receives demands as inputs from other subsystems of the total societal system, producing outputs which both affect the other subsystems and mitigate the demands that the other subsystems are placing on the political system.[42] Just as Easton feels that political science lacks a

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[41] John H. Kunkel. Society and Economic Growth (New York: Oxford University Press, 1970), p. 183.

[42] David Easton. A Systems Analysis of Political Life (New York: John Wiley & Sons, 1965), p. 471.

general integrating theory, so we have come to feel that social science in general lacks such a theory. Just as Easton feels that a systems analysis of political life can provide the basis for developing such a theory, so we feel that a systems analysis of society can provide the basis for developing such a theory. Just as Easton doubts that successful policy and program development can be achieved without the guidelines of a general theory, so we doubt that social problems and the development of a scheme for recovery from a nuclear war can be adequately dealt with, without a total systems model of society.

The men that were quoted here are all distinguished social scientists, holding the rank of full professor at some of our best universities. Their work has been supported by their own faculties and by some of the most critical and demanding of the agencies providing financial support to scholars. They are not the only social scientists who perceive systems analysis of society as a whole and systems analysis of the subsystems within society as being the promising approach for the future development of social science. At the same time, it cannot be said that they represent the majority of social scientists. Many social scientists have a fear that such systems analysis of social processes will reveal that man is simply a cog in a machine, with no individuality, no creativity, no uniqueness, and take a view of man, his organizations, and his institutions that precludes their accepting the validity of such an approach. It is the belief of this author that the social scientists that have been quoted throughout this chapter, and their many allies, are the precursors of social science of the future. It is also the belief of the author that this is the only kind of social science that can adequately deal with social problems, particularly with such a massive social problem as recovery from a nuclear war. It has been suggested by most of the authors cited that society as a whole is a system and must be understood as such. While several of the men referred

to prefer to deal with certain major subsystems as their primary concern, nevertheless, there is a clear and explicit orientation toward recognizing the variety, complexity and interdependence of other subsystems. One cannot but be aware that dealing with only one of the subsystems as if it were a separate entity or the totality of the social system, is not only inadequate but very likely to be misleading.

The social scientists that support the systems analysis approach to general theory building and to program planning and problem solving in society generally recognize that this is a very big job and are quite generally skeptical with regard to just how soon we can adequately make use of the tool being developed. It would be most misleading in this presentation if this fact were not fully recognized. Most of the people who see systems social science as the framework for a general theory that can lead to much improved dealing with operational problems in society are quite skeptical with regard to our ability to apply the tool to society now. Easton is perhaps the most skeptical of all. He says:

> I shall be exploring a conceptual framework around which the more complex structure of a theory may possibly, in the slowness of time, be added.[43]

There is, therefore, this distinction between most of the social scientists referred to here and the author of this paper. For the author presumes to try to use the systems model of society that he is able to present now as a tool for developing a management system for guiding society through from nuclear disaster to recovery. In this bold presumption, the author cannot claim some new and overwhelming source of insight, or new data unknown to the other social scientists. The presumption is not based on knowledge that is better than theirs, nor on the belief that the modeling presented here has so far outreached prior efforts as to quiet

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[43] Ibid., Easton, p. 12.

their doubts. It has not. Its inadequacies and its fundamentally incomplete nature are all too apparent. However, in its current fragmentary form, combining both quantitative and qualitative elements, it already suggests some major considerations for managing society under stress. The suggestions regarding what needs people in a seriously stressed situation will wish to serve first, and will expect societal support for, provide only fragmentary guidelines for the management of society through stress to recovery. Yet, in these fragmentary guidelines, there seems to be a promise of much more to come. Considering the limited amount of time and effort that has been available for the development of the model and for the development of utilization schemes and the limited success already developing, it would seem that we are not as far from having an operationally useful general theory of society as most suspect. Furthermore, the effort must be made if we are to deal realistically with our contemporary situation. If we could wait indefinitely before we were faced with the need to solve major social problems, then we could proceed indefinitely with the development of a societal systems model. Somewhere out approaching infinity, a highly refined, highly useful model would have been developed. In the long run, systems social science will be and would be successful; but as Lord Keynes once said: "In the long run, we are all dead." Our problems are major and they are now. The possibility of ameliorating them with immediate application of a crude systems model of society, therefore, should not be overlooked.

The model as presented here requires some reworking, some elaboration, some systematization if it is to serve such a purpose. In its present state, it is only a promise of what might be, and perhaps a promise that is somewhat hard to recognize as such. Yet it is possible by utilizing the model to suggest several important considerations such as the consideration of the importance of the monetary system for recovery; the importance

of understanding the relationship between the wants of survivors and a hierarchy of needs as a basis for allocating manpower; and the relationship of the effectiveness of the system and the effectiveness of competent manpower in serving the system.

The data needed to fill in the various coefficients exists, in many forms, in the various data banks of contemporary society. The Bureau of Labor Statistics and the Census Bureau constitute two important sources of data. The Department of Commerce, the Department of Agriculture collect data that is relevant, and in the records of many of the industrial firms in our society, there is additional data that can be taken and used directly if it can be made available. Other data, such as that regarding the involvement of persons in voluntary organizations, will need to be developed. Some studies of voluntary organizations have been performed, but voluntary role-playing has tended to be treated as all of one type and not to be differentiated into its various forms so that a good deal of work will have to be done in developing this data.

It is well within the realm of possibility and the competence of contemporary social scientists for a small staff to take the present model and elaborations that can be added to it simply and directly from such sources as David Easton's Systems Analysis of Political Life, and determine what data in what form is most needed. The model provides us, in its present form, with a basis for doing just that. Once this is done, the available data can be acquired, the coefficients can be introduced into the model, and using the kind of quantitative/qualitative application suggested by Professor Williams, a structured plan for problem-solving of a variety of social problems, including the problem of recovery from a nuclear attack, can be prepared.

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SUMMARY

Title: A Model of Society to Use in Systematic Analysis and Management Planning for Societies under Stress: Further Development

Author: Earl E. Hall with research collaboration by Freeman B. Hudson

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This report describes further development of a systems model of society to be used as a tool in planning for societal recovery following nuclear attack. The basic elements of the system were presented in an earlier report, A Model of Society to Use in Systematic Analysis and Management Planning for Societies under Stress; the present report emphasizes the needs-systems-effort equations of the societal model and covers in detail the general systemic implications of specific human needs; implications for the consumer demand subsystem; implications for the institution-building subsystem; and general implications for recovery planning. The report concludes with a description of developments in the social sciences related to the potential of societal modeling.