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PSYCHO-SOCIAL PROBLEMS
OF
SHELTER OCCUPANCY

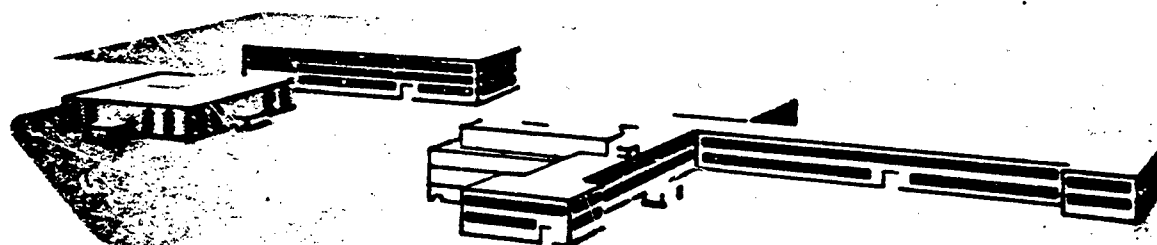
JULY 1965

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SUMMARY OF RESEARCH REPORT

PSYCHO-SOCIAL PROBLEMS OF SHELTER OCCUPANCY

July 1965

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Science Park, State College, Pa.**

**Summary Prepared by:
HRB-Singer, Inc.
July 1965**

SUMMARY AND CONCLUSIONS

The possibility of a thermonuclear attack upon the United States has gained widespread acceptance among the general populace as well as among governmental officials. Such an attack would present problems of a scope beyond the imagination and control of most people. Therefore, great effort must be directed toward learning to identify, to define as clearly as possible, and to explore fully each problem in order to develop courses of action conducive to the survival and rapid recovery of the nation.

The total problem of a thermonuclear attack has been separated into several aspects to facilitate its discussion and study. In brief, these aspects are: the pre-attack period, the attack period, the closed-up period, and the post-attack period (Nordlie and Popper, 1961). This investigation focused upon the psychological and social behaviors of people in the closed-up period.

According to Nordlie and Popper (1961), during the closed-up period, people are expected to be closed up for a period of time sufficient for radioactivity to decrease or to decay to an acceptable level where exposure would not be lethal. The specific duration of this period is difficult to assign because it will vary according to local conditions. A period of two weeks, however, has been accepted as a basic in-shelter planning period (Durkee, 1965) although in one locality the time period may be two hours and in a nearby locality two months. The closed-up phase emerges as the immediate physical effects of the impact phase end. It terminates for a given area when the radiation hazard subsides to a level which permits people to leave their shelter even if only for short time intervals.

In the early stages of exploration, very little of an encouraging nature was reported in the psychological and sociological literature concerning survival during the closed-up phase. Most opinions and reports indicated that fallout shelter occupancy was likely to be so traumatic that large segments of the population could not undergo it. However, there was so little relevant information available that studies had to be undertaken as Vernon (1959) indicated "...to determine whether or not a family could remain for fourteen consecutive days in a simulated fallout shelter." Since this early study, a number of well-designed studies have been done to clarify many of the ambiguities and problems of shelter

occupancy. For the most part, however, the emphasis of research has been on the physical aspects of a shelter program, and this is appropriate because until adequate data in this area are available, consideration of the psychological and sociological aspects of enselterment is premature.

A review of the literature on stress as well as on shelter occupancy indicated a paucity of data that could be considered appropriate to the psychological environment of an actual shelter during an actual closed-up phase of an actual thermonuclear attack. One of the criticisms has been that, while the physical model of the shelter may have been appropriate, the psychological environment created was unrealistic. If one were to investigate psycho-social problems likely to arise during confinement in a shelter, a realistic psychological model of that environment must be created. This study attempted to approach realism through the use of patients confined to state and federally operated mental hospitals. Experience, as well as discussions, with psychiatrists and psychologists indicated that confinement in mental hospitals represented many aspects common to shelter confinement. In fact, people likely would be in a state of shock as they enter a fallout shelter and, hence, probably would be very similar to people with minor psychological disorders entering mental hospitals. Discussions of these similarities appear throughout the final report (see pages 10, 49, 50, 51, 52 and 53). Another important limitation of previous shelter studies has been bias brought in through the use of volunteer subjects to make up the sample to be studied. This study sought to minimize, if not eliminate, this bias by using patients who were representative of the normal population. The selected group were first admissions to the hospital who had "mild" disorders (see Appendix B for the criteria of selection). In addition to having good contact with reality, the subjects in the sample had an ability to react to the stresses inherent in being in a hospital and were capable of cooperating with those conducting the research. Another aspect of similarity was the restrictive nature of the hospital itself. It provided many of the features anticipated for shelter living.

Perhaps the most important handicap in defining shelter research comes from lack of agreement on just what constitutes a "problem" when considering behavior in shelters. McDermott had this to say regarding mass behavior:

While we must continue to probe the problems relating to mass behavior in a disaster, considerable evidence has been gathered to refute the notion that violence, hysteria, and general mayhem would be rife ... (1962, p. 4).

It would seem then that we are not concerned with extreme behaviors, but rather with the vast scope of intermediary problems, the extent and severity of which are not known. This study considered a problem as existing if an event was present that served to lessen the functioning of a shelteree as an individual or as a contributing member of a group. Any aspect of confinement that contributes, either negatively or positively, to the optimum functioning of an individual should be identified, defined, and explored. This investigation attempted to do this. One goal of these endeavors is to provide valid information for governmental officials so that wise decisions can be made concerning the worthwhileness of making provision for psycho-social problems, either all of them or certain selected ones.

The purpose of this research was: (a) to discover, through carefully controlled methods, a set of criteria for the psychological environment found accompanying confinement; (b) to discover changes in behavior during confinement; and (c) to develop a diagnostic tool to aid in the identification of co-operative behavior. The scope of work also called for a review and evaluation of conclusions reached in previous shelter occupancy studies as well as the assembling of material related to psycho-social behaviors suitable for inclusion in a shelter manager's handbook.

Restatement of the Problems.

Problem 1. To discover significant relationships between behavior and the psychological environment of early confinement.

To answer this problem, two procedures were followed. (a) the development and use of instruments to measure behavior during the early period of confinement and (b) the development and use of an instrument to measure the psychological environment of early confinement.

To discover these relationships, the following hypothesis is presented.

H₁. There is a significant relationship between human behavior as evidenced in twelve factors,

1. Social Competence
2. Social Interest
3. Personal Interest

4. Cooperation
5. Irritability
6. Manifest Psychosis
7. Paranoid Depression
8. Tension
9. Dominance (Submission)
10. Love (Hostility)
11. Emotional Tone
12. Outcome

and the acceptance of the psychological environment of early confinement as evidenced in eight factors,

1. Physical Confinement
2. Psychological Confinement
3. Lack of Privacy
4. Lack of Physical Supports
5. Lack of Familiar Behavior Patterns
6. Lack of Familiar Interpersonal Relationships
7. Loss of Identity
8. Fears

Problem 2. To discover significant relationships between behavior and the psychological environment following a period of confinement.

To answer this problem, two procedures were followed: (a) the use of the instruments (developed and used to measure behavior in Problem 1) after a period of confinement and (b) the use of the instrument (developed and used to measure the psychological environment in Problem 1) after a period of confinement.

To discover these relationships, the following hypothesis is presented:

H₂: There is a significant relationship between human behavior as evidenced in twelve factors (see Problem 1) and the psychological environment which follows a period of confinement as evidenced in eight factors (see Problem 1).

Problem 3. To discover a significant difference in behavior early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of behavior early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₃: Behavior early in confinement is no different from behavior following a period of confinement.

H₄: The distribution of scores representing changes in behavior from early confinement to later confinement will be uniform.

Problem 4. To discover a significant difference in the acceptance of the psychological environment of confinement early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of acceptance of the psychological environment of confinement early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₅: The acceptance of the psychological environment representative of confinement is no different early in confinement than following a period of confinement.

H₆: The distribution of scores representing changes in feeling toward confinement from early confinement to later confinement will be uniform.

Problem 5. To discover a significant relationship between two-man game decisions and cooperative behavior.

To answer this problem, two procedures were followed (a) the development and use of a two-man decision making game and (b) the evaluation of cooperative behavior.

To discover this relationship, the following hypothesis is presented:

H₇: There is a significant relationship between decisions to play cooperatively in a two-man game and cooperative behavior.

Problems 1, 2 and 3 encompass the work outlined in Tasks I, II and III given in the scope of work (see Appendix A, page 127). Task IV attempted to ready the

instruments developed during Tasks I, II and III for use in shelters as well as for use in contemplated shelter research.

Procedures.

A review of instruments best suited to study behavior related to confinement indicated that psychotic behavior was given too much emphasis. Since this study was interested in the behavior of normal or near-normal individuals, so that the sample would be very nearly like a sample of people confined to a shelter, it became necessary to create new instruments and to adapt those already existing.

Three different instruments were chosen to measure behavior. The "Nurse's Observation Scale for In-Patient Evaluation" also called the NOSIE, as revised, was used to objectively verify the subjective feelings reported by the patients in the other instruments. The "Self-Description I Scale" by Leary was used to measure subjective feelings of the subjects, while the Thematic Apperception Test, a projective technique, was used to measure the subject's unconscious feelings.

One instrument, "The Self-Description II Scale -- Acceptance of Confinement," was used to measure feelings toward confinement. This was developed especially for the study because no other instrument existed. Its development was based upon personal experience as well as personal communications with others interested in confinement.

One diagnostic tool, a two-man game, was developed for the study to identify cooperative behavior. The game, based upon a mathematical model, used materials likely to be routinely stocked in a shelter, namely, checkers and playing cards.

Findings.

The present investigation was designed to learn if relationships exist between certain behavior patterns and certain psychological stresses occurring during confinement.

Problem 1: Hypothesis 1. In testing H_1 , it was found that high Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension will accompany poor acceptance of confinement at the beginning of a period of

confinement but that those scoring high in these same five measurements will tend to score high also in the acceptance of Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity, and Fears. Also, with these five measurements, Dominance and Love correlate positively (high scores accompany high scores) while Submissiveness and Hostility correlate negatively (low scores accompany high scores).

Regarding the remaining behavior measurements, it was found that high scores on Social Competence, Personal Interest and Cooperation accompany low scores in the acceptance of confinement as evidenced in Lack of Familiar Behavior Patterns, Lack of Familiar Interpersonal Relationships, Loss of Identity and Fears although in two instances; i.e., Fears as correlated with Social Competence and Cooperation, little relationship was found.

Findings Related to Problem 1. While not hypothesized, additional findings are of interest and should be reported. A factor analysis extracted a large "G" or general factor along with four other factors of interest. A correlational analysis of the first five factors indicated that none were associated with each other in a positive manner, although Factor II and Factor IV had high correlations in the negative direction.

Problem 2: Hypothesis 2. In testing H_2 , it was found that high Personal Interest and Love (Lack of Hostility) scores tended to accompany high acceptance of confinement at the end of a period of confinement as evidenced in four measurements, the Physical Confinement, Psychological Confinement, Lack of Privacy and Lack of Familiar Physical Supports. High scores on Irritability, Manifest Psychosis, Paranoid Depression and Tension tended to accompany a lack of acceptance of confinement as measured in the preceding four measurements.

On the other hand, the four other measurements of acceptance of confinement after a period of confinement, namely, a high acceptance of Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity and Fears accompanied behaviors as evidenced in high scores of Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension.

Findings Related to Problem 2. While not hypothesized, additional findings are of interest and should be reported. A factor analysis again, as in Problem 1, extracted a large "G" or general factor along with three other factors of interest. A correlational analysis showed that Factor I and II were only slightly related while Factors III, IV and V showed a negative correlation.

Problem 3: Hypothesis 3. Two of the twelve measurements of behavior changed significantly as measured by the t test of significance during confinement, namely, Dominance (Lack of Submissiveness) and Love (Lack of Hostility). Some of the other twelve measurements showed differences which were high but did not reach statistical significance.

Problem 3: Hypothesis 4. In testing H_4 by Chi-square, it was found that eight of the twelve measurements of behavior changed significantly. The seven behaviors are: Social Competence, Social Interest, Cooperation, Manifest Psychosis, Tension, Dominance and Love.

Problem 4: Hypothesis 5. In testing H_5 by the test, it was found that all of the measurements changed significantly during confinement, showing that the psychological environment at the beginning of confinement is different from that following a period of confinement. The eight measurements of the psychological environment were: Physical Confinement, Psychological Confinement, Lack of Privacy, Lack of Familiar Physical Supports, Lack of Familiar Behavior Patterns, Lack of Familiar Interpersonal Relationships, Loss of Identity, and Fears.

Problem 4: Hypothesis 6. In testing H_6 by Chi-square, it was found that all of the measurements changed significantly during confinement, showing that the psychological environment at the beginning of confinement is different for most people from that following a period of confinement. The eight measurements are the same as in H_5 .

Findings Related to Problems 3 and 4. Analysis of Variances for the three hospitals contributing the most cases were carried out showing that patterns of behavior vary among the hospitals both before and after confinement and that a difference seems to exist between changes that take place during confinement.

Problem 5: Hypothesis 7. A relationship was found between two-man game decisions and cooperative behavior.

Conclusions.

The following conclusions appear justified on the basis of the results of the study under the limitations presented earlier and pending further validation procedures.

1. Certain behaviors appear to be important in the psychological environments that exist (a) at the beginning of a period of confinement and (b) following a period of confinement.

2. The psychological environments that exist at the beginning of and following a period of confinement can be (a) defined, (b) measured, and (c) controlled.

Implications.

The study developed and used successfully a set of diagnostic instruments. A hopeful application of these would be adaptation for inclusion in guides or handbooks planned for shelter management. A set of probable behaviors related to the results of the study have been developed as well as recommended appropriate actions. These are included as Chapter VI, rather than as an Appendix because they represent part of the study's scope of work as given in Appendix A, instead of an integral part of the investigation.

The extremely important major contribution of this study is the finding that there are identifiable psychological phenomena related to confinement. This implies that great care should now be taken in the interpretation of all research related to shelter occupancy.

Suggestions for Research.

The major finding that definable, measurable and controllable psychological environments exist in relationship to confinement poses many avenues for further research. Three are foremost.

1. Validation of the study.
2. Refinement of instruments used in the study.
3. Extension of the findings.

The review and evaluation of other studies of shelter occupancy indicate the following deserve initial or continued study.

1. Framework for research. It was almost an impossible task to compare findings from several research groups. By now, sufficient exploratory work has been done to enable a framework to be set up. The framework should define general areas of research as well as specific components in each area.

2. Definition of concepts. For the same reason, it was difficult to compare findings because the concepts used in the various research designs appeared, at times, to represent different phenomena. Thus, in the study just completed, the concept "problem" was carefully defined. However, "problems" are likely to exist on a continuum and concepts and/or definitions should be set up to specify them. This procedure is necessary not only to make future research designs meaningful but to provide base lines for subsequent hypothesis testing.

3. Reality of shelter simulation. It is helpful to note the limitations of shelter simulation in research reports. However, at times, this limitation seems to have made many of the results meaningless. Attempts to provide reality should be given greater emphasis.

4. Extension of studies to include post-attack period. While emphasis belongs on the closed-up period, consideration should be given to the condition people are in when they emerge from a shelter. This, in fact, is a highly valuable criteria of how successful the closed-up period was.

5. Shelter management.

(a) Management needs as well as the organizational structure of the shelter should be more clearly identified and designated.

(b) The shelter manager's handbook should be tested by itself and not confounded with many other variables.

(c) Communication as well as lines of control should be explored.

(d) Methods for the early identification and subsequent utilization of talent within the shelter should be developed.

(e) The finding that a good manager usually means a well run shelter indicates that more should be done to identify and train potential managers. Opportunities for the maximum development of the populace as a whole in peacetime should be explored.

(f) The entire area of subgroupings, emergent or deliberately formed, within the shelter population should be investigated.

6. Specific populations. Very little has been done to study behavior of specific groups: teenagers, children, the aged, etc.

7. Defectors from previous shelter studies should be studied in greater detail. Problems they faced might well be important to large segments of people.

Finally, and more important than any other suggestions is the urgent recommendation that greater care be taken by all engaged in shelter occupancy research to carefully set up experimental designs that include sophisticated research methods. A variety of statistical analyses should be included. Rigorous statistical evaluations, as opposed to subjective reporting should be the basis of future research studies.

ABSTRACTPSYCHO-SOCIAL PROBLEMS OF SHELTER OCCUPANCY

This project, supported by the Office of Civil Defense, developed a psychological model of protective shelters and a methodology for identifying and describing the psychological stresses and supports existing during enshelterment. The admission wards of selected psychiatric hospitals were used as an analogue to the shelter confinement with subjects rigorously selected to insure valid extrapolation of results to the projected shelter occupancy population. Emphasis was placed upon studying the psychological rather than the physical environment.

The approach utilized a literature collation covering the clinical as well as the traditional stress research in order to define and describe the psychological processes occurring within the shelter. Selected projective techniques, a ward behavior rating form, and an in-house developed self-rating form provided data for ordering the psychological processes under investigation in terms of probability of occurrence and importance of resulting behavior. These data also provided a base for validating comparisons with data from existing occupancy studies. Efforts were expended to develop methods and techniques for use in future occupancy studies designed to close existing gaps in enshelterment knowledge.

A set of diagnostic tools was developed for use by the shelter manager. A two-man game was constructed and pretested as a screening device for shelter manager use. A set of probable behaviors related to the results obtained from the above were provided as well as a set of remedial actions to be taken by the shelter manager.

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Chapter I

INTRODUCTION

The distinct possibility of a thermonuclear attack upon the continental United States recently has gained widespread acceptance among the general populace as well as among governmental officials. This possibility was recognized by the Office of Civil Defense some time ago, and programs have been designed from time to time to ascertain what specific preparations and planning will mean the difference between survival and catastrophe should such an event occur. Every family as well as each individual certainly must be aware of the efforts of the Office of Civil Defense to encourage everyone to learn what to do and to be prepared to act with a minimum of confusion in meeting whatever emergency situation might develop.

A thermonuclear attack would present problems of a scope beyond the imagination of most people. Thus, great effort must be directed toward learning to identify, to define as clearly as possible, and to explore fully each problem in order to develop courses of action conducive to the survival and rapid recovery of the nation.

The total problem of a thermonuclear attack has been separated into several aspects to facilitate its study. In brief, these aspects are: the pre-attack period, the attack period, the closed-up period, and the post-attack period. A variety of detailed definitions and descriptions of these periods can be found in many studies, but one delineation can serve as an example. In outlining a framework suitable for studying a thermonuclear attack, Nordlie and Popper (1961, pp. 3-5) set up the following phases which they say lend themselves to study.

Pre-Attack Phase: begins sometime prior to and ends with the explosion of the bomb(s). If warning occurs, it takes place within the Pre-attack Phase.

Impact Phase: begins with the explosion of the first bomb and carries through the immediate physical effects of the attack (excluding residual fallout). This is apt to be a short period.

Closed-Up Phase: the naming of this phase is intended to reflect the conditions that likely will prevail for a period of time following a thermonuclear explosion as a result primarily of radiation hazard. During this phase, people are "closed-up" in private or public shelters. Durkee (1965) notes the purpose of a fallout shelter as essentially a protective shield against nuclear radiation. When a nuclear fireball touches the ground, thousands of tons of matter are sucked high into the air, forming an intensely radioactive cloud. The debris then sifts back down as radioactive fallout particles -- most of them about the size of table salt or fine sand. The heavier particles settle to earth fairly quickly, and the smaller, lighter ones are carried further downward and fall more slowly, hour after hour, in a pattern that may extend hundreds of miles. Fallout's greatest danger lies with gamma rays which are highly penetrating and damaging to living tissue. Persons and animals exposed over a brief period to a high dosage of gamma radiation become sick and die. According to Durkee, studies show that, following an all-out nuclear attack, fallout radiation could be a significant immediate danger to human life for a period of up to two weeks. After that time, most of the radioactivity would have decreased ("decayed") to acceptable levels. In most areas of the country, people probably could leave fallout shelters before the end of two weeks, at least for brief periods of time. But two weeks has been accepted as a basic in-shelter planning criteria (Durkee, 1965, p. 12).

Emergence Phase: this phase is conceived as a transition between the Closed-up and the Reconstitution Phases. "...emergence from shelters is likely to be gradual within any area..... emergence will probably be sporadic and extend over a time period of days to weeks."

Reconstitution Phase: "...the occurrence of conditions which indicate that the society is moving toward recovery, rather than the reverse."

Since wherever there are people, there will be opportunities for psychological and sociological problems, it can be assumed that problems can exist during each phase. However, this research shall concern itself only with the closed-up period just described from the time of entry into and exit from a shelter. Specifically, it is concerned with the behaviors of people confined to a shelter.

Background and Need for Psycho-Social Research in Shelter Occupancy.

In the early stages of exploration, very little of an encouraging nature was reported in the psychological and sociological literature. Most opinions and reports indicated that fallout shelter occupancy was likely to be so traumatic that large segments of the population could not undergo it. However, there was so little relevant information available that studies had to be undertaken as Vernon (1959) indicated "...to determine whether or not a family could remain for fourteen consecutive days in a simulated fallout shelter." Since this early study, a number of well designed studies have been done clarifying many of the ambiguities and problems of shelter occupancy. Each study has built upon those preceding it and has considered, in turn, basic questions of shelter construction, stocking, and occupancy. The emphasis on the physical aspects of a shelter program has been most appropriate because until data in this area were available consideration of the psychological and sociological aspects of enshelterment would have been premature.

The foregoing does not imply that no consideration has been given to the psychological and sociological aspects but only that the emphasis has been elsewhere. An excellent beginning has been made in these areas by Strobe, et al., (1960), Rasmussen (1963), Altman (1960), and others as will be presented later in a review of the literature, but these constituted only a beginning. In these studies, consideration has been given to social and psychological processes occurring in simulated shelter situations utilizing volunteers as shelter occupants. There is a question about the reality of a simulated shelter and also about the use of volunteers as opposed to those obtained from a selected stratified sample of the population. In spite of the high degree of professional competency shown in these studies, and those using natural disorders, submarines, polar expeditions, and other isolated stations, considerable question remains as to whether the results from these studies can be applied to actual shelter occupancy during the period of thermonuclear fallout. Evidence suggests that the shelter studies done to date do not represent the social and psychological conditions likely to exist in shelters after a thermonuclear attack.

It is not sufficient simply to cast doubt upon the contention that serious psycho-social problems will not exist during enshelterment. The gap in knowledge must be identified, the implications of this gap must be revealed and methods, techniques, and bases for future occupancy studies which will close

the gap must be developed. The result of an erroneous decision, based upon faulty or incomplete information regarding psycho-social problems, or the alleged lack of them, of shelter occupancy, is not limited to an increase in discomfort in shelter occupancy but rather has a very definite bearing on the condition that shelter occupants will be in to meet the challenges likely to be present during the emergence and reconstitution phases. Optimum adjustment during enshelterment will assist an individual to emerge from the shelter not only physically and psychologically able to live but, above this minimum, to adapt and to function efficiently in the post-shelter environment with at least the capability he took into the shelter.

This study considered a problem as existing if an event was present that served to lessen the function of a shelteree as an individual or as a contributing member of a group. Any aspect of confinement that contributes, either negatively or positively, to the optimum functioning of an individual or group should be identified and clarified. This investigation is one of several attempting to do this. The goal of these endeavors, in addition to providing solid bases for research, is to provide valid information primarily for governmental officials so that wise decisions can be made concerning the worthwhileness of making provision for psycho-social problems, either all of them or certain selected ones.

The purpose of this research was: (a) to discover, through carefully controlled methods, a set of criteria for identifying the psychological environment found in confinement; (b) to discover changes in behavior during confinement; and (c) to develop a diagnostic tool to aid in the identification of cooperative behavior. The scope of work also called for a review and evaluation of conclusions reached in previous shelter occupancy studies as well as the assembling of material related to psycho-social behaviors suitable for inclusion in a shelter manager's handbook.

Statement of the Problems.

Problem 1. To discover significant relationships between behavior and the psychological environment preceding confinement.

To answer this problem, two procedures were followed: (a) the development and use of instruments to measure behavior preceding confinement and

(b) the development and use of an instrument to measure the psychological environment preceding confinement.

To discover these relationships the following hypothesis is presented:

H₁: There is a significant relationship between human behavior as evidenced in twelve factors,

1. Social Competence
2. Social Interest
3. Personal Interest
4. Cooperation
5. Irritability
6. Manifest Psychosis
7. Paranoid Depression
8. Tension
9. Dominance (Submission)
10. Love (Hostility)
11. Emotional Tone
12. Outcome

and the psychological environment which precedes confinement as evidenced in eight factors,

1. Physical Confinement
2. Psychological Confinement
3. Lack of Privacy
4. Lack of Physical Supports
5. Lack of Familiar Behavior Patterns
6. Lack of Familiar Interpersonal Relationships
7. Loss of Identity
8. Fears

Problem 2. To discover significant relationships between behavior and the psychological environment following confinement.

To answer this problem, two procedures were followed: (a) the use of the instruments (developed and used to measure behavior in Problem 1) after a period of confinement and (b) the use of the instrument (developed and used to measure the psychological environment in Problem 1) after a period of confinement.

To discover these relationships, the following hypothesis is presented:

H₂: There is a significant relationship between human behavior as evidenced in twelve factors (see Problem 1) and the psychological environment which follows confinement as evidenced in eight factors (see Problem 1).

Problem 3. To discover a significant difference in behavior early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of behavior early in and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₃: Behavior early in confinement is no different from behavior following confinement.

H₄: The distribution of scores representing changes in behavior from early confinement to later confinement will be uniform.

Problem 4. To discover a significant difference in the acceptance of the psychological environment of confinement early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of acceptance of the psychological environment of confinement early in and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₅: The acceptance of the psychological environment representative of confinement is no different early in confinement than following a period of confinement.

H₆: The distribution of scores representing changes in feeling toward confinement from early confinement to later confinement will be uniform.

Problem 5. To discover a significant relationship between two-man game decisions and cooperative behavior.

To answer this problem, two procedures were followed: (a) the development and use of a two-man decision making game, and (b) the evaluation of cooperative behavior.

To discover this relationship, the following hypothesis is presented:

H₇: There is a significant relationship between decisions to play cooperatively in a two-man game and cooperative behavior.

Problems 1, 2 and 3 encompass the work outlined in Tasks I, II and III given in the statement of work of the contract. Task IV attempts to ready the instruments developed during Task I, II and III for use in shelters as well as for use in contemplated shelter research.

Definition of Terms

The following terms were defined for use in this study:

Enshelterment applied to that period in time from the entry into and exit from a shelter. This period sometimes was known as the closed-up phase or period.

Psychological environment applied to an individual's subjective frame of reference and in this research was studied in the areas specified as follows.

1. Physical confinement was defined as the inability to move freely within the confinement area and to leave this area at will.
2. Psychological confinement was defined as the inability to implement decisions affecting oneself.
3. Lack of privacy meant the inability to seclude or isolate oneself from others at will.
4. Lack of familiar physical supports meant the absence or unavailability of personal belongings, such as automobiles, jewelry, cosmetics, wearing apparel and similar meaningful items.

5. Lack of familiar behavior patterns applied to the inability to carry on normal activities found in work, recreation, religion, and other areas.

6. Lack of familiar interpersonal relationships meant the loss of normal contact with family, friends, co-workers and others and the inability to re-establish them (e.g., by telephone) at will.

7. Loss of personal identify referred to lost individuality and the fact that familiar roles could not be played.

8. Fear was defined as an emotion experienced when one is confronted by threatening danger, which may be real or only perceived. It may evolve from interactions with, for example, peers, supervisory personnel, unfamiliar surroundings, and ambiguity of roles to be played.

Human behavior was studied as evidenced in the areas specified as follows:

1. Social competence referred to the ability to care for oneself as a social being, to carry out relatively simple tasks considered appropriate for adults (e.g., keeping oneself clean) and to maintain civil manners.

2. Social interest meant an active concern for interaction with other people and an interest in activities involving people.

3. Personal interest meant to maintain oneself in a socially desirable or acceptable manner for interacting with other people (e.g., neat clothes and grooming).

4. Cooperation was defined as showing evidence of voluntary or requested helpfulness by the patient.

5. Irritability meant showing a tendency toward annoyance in situations which, of themselves, do not warrant strong negative or disorganized reactions.

6. Manifest psychosis was defined as a conflict behavior for situations or problems within rather than without (e.g., people, surroundings) the individual. Solutions are available within the individual but he is unable to arrive at them.

7. Paranoid depression referred to behavior evidencing that the individual believed or thought that he had no real control over his environment which was hostile. A sign of this behavior would be struggle and surrender of an irrational nature.

8. Tension referred to an underlying uneasiness, mental or emotional strain.

A psycho-social problem was defined as any event of confinement that contributed, either negatively or positively, to the optimum effective functioning of an individual, either as a single person or as a contributing member of a group.

Study population was composed of thirty-three patients from mental hospitals located in Pennsylvania and New York. The six hospitals sent case material from sixteen, seven, five, two, and one patients, respectively. The criteria used in the selection of patients for the study are given in Appendix B

Early tests referred to the sum total of measurements taken within twenty-four hours of the time of the patient's admission to the hospital.

Later tests referred to the sum total of measurements taken approximately seventy-two hours after pretesting.

Early confinement referred to that period from the beginning of confinement until twenty-four hours later.

Later confinement referred to that period approximately seventy-two hours following the beginning of confinement. Confinement had not terminated but was still in effect.

Assumptions and Limitations of the Study

Several assumptions and limitations were made by the investigators.

1. The sample of the study was limited to thirty-three individuals. While this number should be adequate for a study of this nature, it did not approach the larger sized sample anticipated because of the strict requirements set up. (See Appendix B for criteria used in the careful selection of patients for the study.)

2. No attempt was made to account for differences which may have resulted from sex differences although the study sample was made up of approximately equal numbers of both sexes.

3. To the extent that shelterees are similar to the patient in this study, the conclusions reached in this study may apply. It should be recognized that groups in shelters will vary and that a single standard cannot be set up.

This study is based upon the assumption that a similarity exists between individuals who would be entering a shelter following an actual thermonuclear explosion and individuals who enter a hospital for treatment of "minor" disorders. Both circumstances deal with individuals who are emotionally upset but still have good contact with reality and some personal control. Both are situations that cannot be defined clearly nor with certainty but do serve as places of refuge for distressed people where help can be gotten. Individuals enter the hospital or shelter of their own accord, knowing they will be confined there until the outside environment is less hostile or until they are able to cope with it. They have no idea how long they will have to stay nor just what the outside world will be like when they return to it. However, they have had the insight to seek professional help. Depression, withdrawal, anxiety, and fatigue were some of the more prevalent bases for the admissions. Many people with similar psychological problems do not actively seek professional help but choose to solve their problems by themselves. Some get better, some worse, while others continue unhappy lives. Experts agree that there are times in every person's life when professional psychological help would be very beneficial.

While in a hospital, a minimum of belongings is available (some clothing, makeup in plastic cases, wedding rings, cigarettes, etc.). A set routine for eating, sleeping, personal and social activities is followed. Communication with family and friends is limited. Privacy is either lacking or available only under nonnormal conditions (i.e., in the shower room). Activity and interpersonal relationships are very restricted, especially during the first few days following admission (i.e., for the patients used in our study).

This study assumed that things that bothered patients confined in hospitals will bother people confined in shelters. Patients did not like to have the doors locked or to be closed up. They complained because they were not free to go outside. Regulations bothered them. The noisiness of other patients was upsetting. When privacy was lacking, it served to foster complaints. Women complained more than men. (See Appendix C, pages 148-160, for greater detail.) One of the strongest similarities lies in a common fear of the unknown (What is

going to happen to me?). It bothered the patients very much. This study assumed this fear will prevail in a shelter population unless and until something is done to alleviate it.

4. The study was expected to be able to investigate a large sample of patients. Discussions with various hospital personnel prior to the start of the study led to this expectation. However, this did not happen primarily due to the shortage of facilities for treating individuals for "minor" mental complaints. The turnover in patients in some hospitals came to a near standstill, and the few openings that became available were granted to individuals with severe problems and, hence, unsuitable to become members of the study sample. One hospital attempted to solve the problem of full capacity by treating mild cases as day care patients who spent the day in the hospital but returned home at night. Many hospitals treat individuals with mild problems without admitting them as patients. These are but two ways hospitals are trying to meet the problem of lack of facilities to handle all who can profit by the services they offer.

Chapter II

REVIEW OF RELATED LITERATURE, INCLUDING A REVIEW AND EVALUATION OF SHELTER OCCUPANCY STUDIES

The literature reviewed to date has been selected for its applicability and pertinence to the task of constructing a psychological model of the post-attack shelter environment. While problems have arisen due to shortcomings in many of the seemingly significant studies, considerable progress has been made toward a thorough understanding of the psychological process likely to be involved. Presented here is a general summary of the problems encountered and gains achieved to date. A selected bibliography of the literature reviewed has been included in the References on page 201.

Task I - Description of the Psychological Environment of the Shelter (Model Building)

Critical Review and Evaluation of the Pertinent Literature on Psychological Stress and Behaviors Under Stress.

One conclusion regarding psychological stress becomes immediately obvious to the researcher who attempts to collate the vast amount of literature available on this subject: there is no "best" or universal definition of stress. In fact, definitions are nearly as numerous as investigators. For the purposes of this study, the most meaningful definition is one which views stress as the result of a situation where the attainment of some goal is threatened. It is thus related to such concepts as deprivation and frustration. This approach to the role of stress permits us to define operating psychological factors in specific rather than generic terms. This will allow the generation of a psychological model which is not restricted to specific physical events.

Thus, the definition of stress selected for the purposes of this study involves treating stress as an intervening variable. This is the position taken by Lazarus, et al. (1952), Katchmer (1958), Applezweig (1957) and others. These investigators maintain a goal frustration concept of stress, with stress being the result of a thwarting of motives or goal directed behavior. Applezweig (1957) notes that stress is dependent upon the motivational pattern (or pattern of life values) existing in an individual and can be understood through an evaluation

of both the environment and the individual motivation of persons interacting with the environment. He also feels that an examination of the environment alone might produce only deceptive generalities about what situation might be stressful to most people. It would be more meaningful to investigate the aspirations, values, or motives of the people subjected to the situations.

This tact has recently been used for studying the adaptation of armed forces personnel to environments of intense cold and isolation. It appears that by far the greatest producer of stress to individuals in these circumstances is not the physical hazard or danger involved but the frustration of isolation and inactivity (Washburne, 1960; Edgerton, 1953). Serious doubt has been cast on any generalizations concerning the effects of cold on specific task performance. One can talk only about the effects of the Arctic on performance due to the predominance of psychological stress producers (Edgerton, 1953). Studies of Arctic operations, survival and escape situations, and prisoner-of-war behavior indicate that fear is a frequent producer of psychological stress.

Grinker and Spiegel (1945) describe fear and anxiety as emotions arising from the possibilities of losing something "loved, highly prized and held very dear" (p.120). Certainly fear for one's physical safety is a frequent producer of stress. Also involved is fear produced by the threat of loss of social-psychological values (Albert, 1956). A sudden threat to the individual will produce attempts at problem solving behavior as a means to prevent any loss of a physical or psychological nature. When the problem solving attempts are hindered by ambiguity and lack of information, a high state of stress results and erratic, random behavior follows (Albert, 1956). If this also is of no avail, a general state of apathy and depression may emerge (Grinker, 1945; Torrance, 1954).

A reduction of the threat thus serves as a goal, but when the path to the goal is blocked or undefined, stress results. Attempts to define the path to the goal are attempts to discover structure in the psychological and physical fields.

There are numerous accounts in the literature concerning the effects of a lack of structure in the psychological field. Laboratory studies (Rabbie, 1963) indicate a significantly greater tendency for subjects to talk to companions when placed in an experimental situation involving a high degree of ambiguity and painful electric shocks. These subjects also showed a marked preference for companions who were not likely to re-arouse fear.

Torrance (1954) conducted interviews with Air Force personnel downed over enemy territory during World War II and over Korea to study behavior under the stress of survival situations. Results of this study indicate that clarity of the situation in terms of structure of the field and structure of the group is the most important determinant for behavior conducive to survival. A lack of field structure (clarity of the paths to survival) resulted in a feeling of hopelessness and despair or random trial and error behavior. Behavior of increased survival value results when the structure of the situation becomes clear. Group structure also plays a vital role in directing behavior. If competition rather than cooperation arises, panic will result, and general uncertainty is likely to create mass action in the direction of the action of any one individual. Inadequate communication will reduce morale, reduce group solidarity, and cause confusion regarding direction of purpose (Gautney and Jones, 1962). Poor leadership which cannot clearly define the goal of the group produces loss of confidence, insecure feelings, and reduction of morale (Grinker, 1945; Cartwright, 1956).

Studies of the Korean prisoner of war behavior (Biderman, 1960) have indicated that depression and apathy are most apt to occur when individuals feel they are totally and irrevocably isolated from the rest of the world. Under these conditions, the attainment of structure is most difficult.

If the physical environment approaches tolerance limits, the physiological reaction of the organism will be compounded by fear or panic. Thus, physical stress will become psychological and reach far greater levels (Hanifan, 1963). It is quite probable that the physical stresses in a fallout shelter environment will accentuate emotional stress. Noxious stimuli present in the shelter as a result of crowded conditions may result in a lowering of the threshold for other stressful stimuli (Bovard, 1959). Thus, it must be emphasized that reactions to the physical surrounding of a real shelter may be grossly different from those displayed in simulated shelter studies in which volunteers were under no real stress from fear for their current or ultimate survival.

Inconsistencies between the achieved and ascribed status of an individual have been shown to produce high levels of stress (Jackson, 1962). Forced interactions may produce increased need for role identification and independent action (Donaldson, 1959). Lack of space created considerable conflict among Korean prisoners of war (Biderman, 1960). Space and other scarcities in the environment are usually in great demand and often serve as symbols of individual identity.

Increased ambiguity of role expectations is related to decreased task efficiency, increased defensiveness, increased dissatisfaction with the group experience, decreased group cohesiveness, and hostility towards nonparticipants (Smith, 1956; Rohrer, 1959; Rohrer, 1959a, 1959b and 1959c).

Feelings of self-reliance and importance are highly susceptible to stress. One study (Berkum, 1958) indicated that even the very act of witnessing an awe-inspiring and dangerous situation (atomic test shot at close range) will produce significant shifts in the individual's self-description. A shift of 3.1 points occurred on an 11 point equal-appearing interval scale. The mean self-descriptive word went from "coolheaded" (before observing the test shot) to "timid" (after observing the test shot).

Unfortunately, attempts to deal with stress as a theoretical construct are plagued with problems of measurement. Studies in the laboratory traditionally investigate stress by studying its effects upon the performance of some isolated, single task. Stress is often only assumed to be present, and methods of assessment differ greatly between investigations. It is exceedingly difficult to extrapolate meaningful results from these studies and apply them to something as complex as the situation likely to result from a thermonuclear attack.

At the other extreme, performance in a complex stress situation has been frequently demonstrated in the recent orbital and suborbital space flights. Results from these investigations are equally difficult to apply due to the existence of noncomparable variables such as training and selection.

Shelter simulation studies have contributed greatly to our understanding of the effects of physical stresses operating in a shelter environment. It must be remembered, however, that the participants of these studies were volunteers and, for a variety of reasons, were not very representative of the total populace. Also, these studies did not include simulation of the psychological environment likely to be present in a nuclear attack.

In spite of these problems, information definitive of the psychological processes occurring under stress is available. Of the studies reviewed to date, one of the prime sources of this information appears to be the data collected by the military on human adjustment and behavior under the stress conditions of isolation and combat survival. Many of these studies take a psycho-social adjustment approach to the description of individual and group behavior and,

while the subjects are not highly representative of the general populace (including only young men acceptable to the armed services), the total situations are remarkably similar to those likely to be encountered in a nuclear attack.

Review and Evaluation of Shelter Occupancy Studies.

Section 3f of the contractual scope of work states: "Data will be compiled and analyzed to yield validating comparisons with existing occupancy studies." This requirement has been interpreted so that "data" is defined as information arising from the experimental portion of the current study as well as from the literature review. As stated throughout the report, emphasis in the study was placed on the psycho-social factors of enshelterment and so conclusions considered from other studies are limited to these areas. For example, the physical aspects of toilet facilities, food supplies, etc., are beyond the scope of the contract and are considered only insofar as they have led to stated psychological conclusions.

A review of the shelter occupancy studies completed to date indicates that they can be divided into two general classes designated as early studies and recent studies. The division occurred in 1962 with the early studies represented by those of Vernon (1959), Strobe, et al. (1960), Altman (1960), and Ramskill, et al. (1962) and the later ones by Hammes, et al. (1962-63, 1964) and Hale et al. (1965). The distinction between early and recent studies is not really time-based but rather represents an oft-occurring process in scientific research. Initial studies in a new area must by necessity concentrate on defining a problem, determining its researchability, and providing data on which following studies can be based. The results of early studies are often stated as hypotheses to be tested, tentative conclusions, or conclusions to be evaluated only within the context of the limitations of the study. These limitations are fully realized by those performing the study and in no sense reduce the study's worth. Rather they establish the restrictions within which the study was performed and provide guidelines for following studies so that these can be designed to remove recognized limitations. Often one of the greatest contributions a given piece of research can make is the establishment of restrictions and errors of design to be avoided as research progresses. In research, the future is closely tied to the past.

Since shelter occupancy studies represent on-going research, evaluation can best be accomplished by considering each study individually within the early and recent studies categories.

Early Studies

Vernon, Jack A., Project Hideaway, Research Contract CDM-SR-60-15.

This study represents a first attempt to determine (1) whether or not a family could remain confined in a family fallout shelter for a period of 14 days, and (2) to determine the nature and gravity of the problem associated with shelter life. Since this was a "first" study, no formal hypotheses were stated.

The study was eminently successful and clearly indicated that "a particular five-member family was capable of easily withstanding 14 days of confinement in a simulated fallout shelter" (p. 12). The recommendations regarding illumination, cooking equipment, recreation, shelter design, refuse disposal, and the art of taking shelter, when considered in the context of the limiting statements ("because it was only one study and because of its conditions" and "cannot generate laws" (p. 22)), have clearly been validated by the research following the study that generated them.

In light of conclusions reached in later studies, especially those by Hammes, et al., the findings of the Vernon study regarding health are of significance. These gain added importance when it is recognized that many factors operating to reduce psycho-social stresses were present for utilization by the shelter occupants (e.g., parents present, varied diet, bunks, security items for children, etc.). The middle child showed some withdrawal and regression in toilet habits. Tranquilizers appeared to remedy the situation. The adults suffered some severe dizzy spells attributed to physical causes and to the "general tension associated with so novel an experience" (p. 21). These findings suggest psycho-social problems as an area of concern but do not invalidate the general statement that fallout protection is feasible. It should also be noted that the study indicated that psycho-social processes can have a beneficial effect (increased integration of the family) if a favorable climate for their operation is provided.

Goldbeck, R. A., and Newman P. H., Habitability Test of the NRDL, 100-Man Shelter, Feb. 1960, AIR-315B-60-FR-222.

Vernon's (1959) study clearly indicated the feasibility of enshelterment and was naturally followed by an attempt to "...determine how well the shelter facilities accommodated group living, and how the inhabitants adjusted to shelter life" (p. 1). Hypotheses were not stated since this study was, by its very nature and its early place in occupancy studies, exploratory.

It must also be noted that the conditions of enshelterment were not austere as judged by conditions existing in later studies but were quite austere in the context in which they occurred. That is, conditions replicated to some extent shipboard life which is generally felt to be significantly less luxurious than average civilian living. The actual shelter conditions, because of lack of space, contact with others, contact with the real world, etc., were, at the time, relatively austere.

The study, of course, suffered from several weaknesses.

- (1) The shelterees were not representative of the general population. They were all male prisoners who volunteered and were medically and psychologically screened (p. 5).
- (2) The level and type of motivation was unspecifiable and confounded since the possibility of reduced sentences was introduced on the fifth day (p. 6).
- (3) Instruments devised for measuring shelteree reactions were probably not sufficiently refined. Note that difficulties of administration were encountered on day five perhaps due to a reluctance to criticize the shelter since on day five they were told shelter behavior was highly related to sentence reduction. Additionally, the instruments were questionnaires and subject to all frailties of such instruments.

The above shortcomings were recognized by the researchers and appeared in the statement of conclusions. One exception was the statement that "...there is little reason to believe that the essential results of the test would be different if some other sample of adult males had been used " (p.6). If this statement

means a sample of adult males who volunteered, were medically and psychologically screened, congruently motivated, etc., and that the essential result is that adult males can emerge alive from such a shelter, the statement is correct. It is, however, not correct if an attempt is made to generalize to the adult male population as a whole and the essential result of emerging as a group capable of cooperative directed activity required to rebuild a destroyed or damaged nation. The question here is one of degree of psychological and physical health upon emergence. *

The shortcomings of the study are overshadowed by its positive contributions. Many factors discovered in the study have appeared in later studies and provided the basis for a fuller understanding of the factors of importance in shelter occupancy. Several of these are considered below in the order in which they appear in the report.

- (1) "The most notable characteristic of the answers to these questions is the lack of consistency in mode of rejecting the shelter. The answers strongly imply that reactions to shelter such as this one are highly specific and not subject to loose interpretation." (p. 17).

These statements, buttressed by the discussion (p. 26) of the need for improved observational techniques and methods, strongly suggested that future research carefully consider problems of measurement. This problem has, of course, received increasing attention and at present occupies a significant portion of the research effort of HRB-Singer, Inc. (1965).

- (2) The importance of sleeping arrangements, seen in all following studies and considered as a variable to be manipulated in the series by Hammes, et al., is clearly recognized (p. 17).

While the full implications of sleeping arrangements are not fully seen, this is hardly to be expected so early in research efforts. The important contribution is the identification of a very important problem area.

* A fuller discussion of capability of emerging shelterees is found elsewhere in this report. (See pages 49 and 56).

- (3) Evidence of the importance of the psycho-social aspects of shelters is found scattered throughout the report but in particular is found in the discussions of lack of privacy and the implications of restricted water usage (p. 19). While no limit was imposed on the amount of drinking water available, water could not be used to bathe or shave. While verbalized reactions to lack of cleanliness are stated in physical terms ("I felt dirty."), reaction to personal uncleanness and uncleanness of others is greatly determined by psycho-social factors rather than actual physical determinants. The olfactory sense soon adapts to even strong odors while the uncleanness does not lead to actual physical discomfort (skin eruptions, etc.) but rather runs counter to the strong and deeply ingrained conception of American cleanliness and its relationship to personal self-worth. The importance of cleanliness to the American public is evident in personal hygiene advertisements and cliches such as "Cleanliness is next to Godliness."

"The second most difficult shelter living condition reported was the lack of space and the crowded conditions. There was evidence to indicate that the lack of space was experienced as a difficulty primarily because of the almost complete lack of privacy resulting" (p. 19). This result is supported by the findings of the present HRB-Singer report (1965) in which lack of privacy emerged as one of the eight patent factors in confinement.

Unfortunately, the strong suggestions regarding the importance of psychological factors indicated here were not explored in detail. The more pressing problems of physically sustaining life in shelters overshadowed these hints of research to come and these hints have not been explored in detail until recently (Laboratory Investigations of Shelter Management Factors, American Institute for Research, Pittsburgh, Pa., January, 1965; Psycho-Social Problems of Shelter Occupancy, HRB-Singer, Inc., State College, Pa., July, 1965).

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- (4) Cautions against over-generalization and the necessity of rigorous experimental design are apparent throughout the report. One finding whose implications became clear only after several following studies had been done is found on page 21. The third most serious difficulty found concerned insufficient seating and the lack of backs on benches. This finding has not been confirmed in following studies simply because benches have not been used. This clearly points up the necessity for rigorous experimental design and the necessity for dealing with basic processes rather than surface manifestations of them. Behavioral observations and verbal reports must not be accepted at face value but tied to underlying processes if valid conclusions are to be reached.
 - (5) The importance of leadership and organization (p. 22) is clearly indicated and has been validated in the series by Hammes, et al., and the AIR Studies (Hale). The report that "...the section leaders could be more 'dynamic' in their roles" clearly anticipates the findings of Hale (1965). Goldbeck and Newman state: "It is hard to underestimate the importance of knowledgeable and judicious leadership to the successful conduct of a shelter stay. In any future shelter experiments, it would be efficacious to include the development of a guide and training procedures for good shelter leadership" (p. 33).
 - (6) The importance of recreation (p. 24) is clearly recognized. However, they question whether, under actual attack conditions, casual recreation would be engaged in. The suggestion is made that an instructional and planning program be implemented. To date, data neither supports nor negates this discussion. It is not possible to recommend the proportion of play and planning required in real life shelters. In extant studies, recreation is of high importance but realism is low. Research under psychologically real conditions is required to provide necessary data in this area.

Viewed in the context of the research time frame in which it occurred, the study discussed provided few answers but a wealth of information for future research. Realistically, it could not be expected to answer more questions than it raised. The original goal as stated was reached and a bonus for future research provided.

Strope, W. E., et al., Preliminary Report on the Shelter Occupancy
Test of 25-29 July 1960, March 1961, USNRDL-TR-502.

Recognition of problems generated in the December NRDL test led to an attempt to meet these problems. The objectives, clearly stated, reflect this purpose. Insofar as this was a study designed to test primarily physical aspects of a shelter, objectives rather than hypotheses were stated. It is the fourth objective, "To gain additional experience in problems of shelter management and human behavior" (p. 1), that is of interest here.

"The significant change in shelter management policy instituted in this experiment has to do with the attitude of the shelter commander. In the December test, the shelter commander adopted a vigorous and forceful demeanor, attempting to gain the respect and obedience of the shelterees through positive leadership characteristics. This attempt was notably successful but raised the question of whether the degree of leadership provided could be expected in the average shelter. Further, it was not clear what effects, if any, would result from less forceful leadership in the shelter."

"In this test, the shelter commander did not train his cadre to the extent that occurred in the previous test; did not attempt to motivate the shelterees to a high degree; and did not play as dominant a role in the daily activities. He adopted a laissez-faire attitude to a considerable extent. In particular, he did not volunteer any solutions to obvious problems, and waited until problems were brought directly to his attention before taking any public notice of them. In some cases, he failed to follow through on actions requested. The effects of this course of action were observed and recorded subjectively by the shelter commander."

It must also be noted that the format of the questionnaire used was preserved" ... to facilitate direct comparison with responses from the December test" (p. 12).

The bulk of the study is concerned with modifications of the December test and as such provided valuable data. In particular, for the purposes of the present report, the data regarding psychological factors is of high value. This is shown in two areas: (1) medical complaints (p. 35) and (2) management data (p. 39ff). Over a five day period there were 46 complaints of headaches, four of upset stomach, and five of nervous tension. While this represents only

a total of 55 complaints, it is important to note that these may well be of psychological origin. This type of complaint has occurred in all studies and indicates a potential area of concern.

Of perhaps greater importance are the discussions of shelter management. The paragraph below provides an outline of the findings of later studies and performs the important service of clearly indicating an area, leadership, which is crucial to successful shelter occupancy.

"In summary, it seems clear that the shelter commander should play an important role in some phases of shelter management. Principal among these are the maintenance of adequate standards and the provision of guidance and training in civil defense matters. The maintenance of standards is a critical function that must be accomplished by shelter leadership. It seems important to establish very early in the shelter stay the general view that standards of conduct which ordinarily apply in public also apply in group shelters. By concentrating on matters of cleanliness, frugal use of water and supplies, and the like, the shelter commander can set an example that will carry over into other areas of group interaction that are less obviously under his control. There appears to be merit in assuming a role of positive leadership to the extent of attempting to anticipate the needs of the group rather than to await the clearcut emergence of a requirement for action. This is particularly true if the activities of leadership can be mediated through the mechanism of a section leader's council or other management device rather than by a personalized approach."

Validation for the conclusions reached here are clearly seen in Hammes' Georgia series (1962-63, 1964) and in the recent work of Hale (1965). Currently, ongoing research sponsored by the Office of Civil Defense recognizes the importance of leadership emphasized in this study. Validation of conclusions thus rests both in studies completed and in studies currently underway.

Strope, W. E., et al., The Family Occupancy Test, 4-6 November 1960, August 1962, USNRDL-TR-578.

Before attempting to evaluate and validate this study, a restatement of some previously cited conditions of evaluation and validation are required.

- (1) The early studies were primarily exploratory in nature and so formal hypotheses could not be stated.

- (2) Actual physical conditions of shelter occupancy were being explored and the level of austerity differed significantly from later studies. A common base between studies, therefore, did not and could not exist.
- (3) Validation lies primarily in generally stated conclusions supported by the results of later studies. For example, the cited importance of shelter manager leadership is valid because the importance of leadership rather than specific methods of leadership has been confirmed in following research.

Thus, as the first study using family groups, males and females, children, etc., the study results must be seen in an exploratory context. The need for shelter leadership, delegation of authority, organization and training pre-shelter, the division of shelterees in small groups, and the need for shelter management handbooks have been amply validated by succeeding studies.

Psycho-social processes do not appear to provide sources of difficulty in this study except as evidenced in terms of some anxiety on the part of two mothers and some children's behavioral problems. In the context of this study, realizing the physical conditions of the shelter, the quality of leadership, the volunteer nature of the shelterees, the length of the study, and the shortcomings of the study as a realistic simulation of an attack situation, the conclusions reached are warranted. It is not until a later study that emphasis is placed on psychological and social adjustment in shelters.

Altman, J.W., et al., Psychological and Social Adjustment in a Simulated Shelter, 1960, CDM-SR-60-10.

Interpretation of this study is difficult and attempts to evaluate and validate the conclusions are severely restricted. The restrictions stem from several sources:

- (1) The limitations cited by the authors (simulation, the sample, self-selection, statistical problems, etc.) restrict the generalizability of

the conclusions and so, within this context, evaluation becomes a matter of considerations of experimental design.

- (2) Actual living conditions do not compare in austerity to current or recent studies and, therefore, comparisons are difficult. To date, a continuum of austerity (a criterion) has not been established and so it is impossible to compare studies on this dimension.
- (3) The following statement effectively precludes critical evaluation because the modifying statements are undefined. "... results of this study, when taken in conjunction with previous habitability research, suggest that shelter confinement per se, will not be overwhelmingly stressful if reasonable management, space, ventilation, temperature, sanitation, light, and sustenance are provided" (p. 96).

The term "suggest" places the statement as a hypotheses to be tested rather than as a firm conclusion and so it cannot be argued. The phrase "overwhelmingly stressful" also makes evaluation difficult. The question is not whether psycho-social stresses will make shelter occupancy impossible but rather is to what extent will psycho-social stresses degrade human performance and to what extent can this degradation, if it occurs, be overcome. Thus, the problem is not one of survival but rather one relating to the ability of shelterees to function efficiently in-shelter and to meet a post-attack world in as healthy a psychological state as is possible within economic, etc., costs. Post-attack the shelterees must be able to co-operatively rebuild a civilization and society.

The latter part of the statement requires "reasonable management, space ... etc." Reasonable is undefined but the implication is that reasonable means problems are reduced to operable levels and the problems are so reduced when reasonable conditions exist. The definition is circular.

In spite of the above difficulties, the study points out several valuable results.

- (1) Lack of privacy again emerges as a significant problem thus gaining support as a variable worth testing. The HRB-Singer study supports this result.
- (2) Leadership (management) emerges as a significant factor in shelter efficiency with the discussions of leadership throughout the study supported by the later AIR study of management styles. Especially of interest in this area are the discussions of the various leaders on pages 34, 36, 37, 38, and 41. Here the factors of disruption by a manager (Mr. Black), the need for deputies, the importance of group status, the definition of the basis for authority, counseling, maintaining standards, etc., are clearly indicated and strongly suggest these are areas requiring further research.

The findings on the phases of shelter adjustment (p. 62ff) are quite valuable. The initial period of confusion has been verified in the Georgia studies and in the current HRB-Singer study and clearly points to the criticality of the early period of enshelterment. The midweek dip has also been verified in the recent studies and suggests it may well not be an artifact. It would be important to verify its occurrence if the release date from the shelter were not known.

The measurement techniques used represent a step forward from those used in previous studies. Although questions of reliability and validity arose, the measurement techniques clearly showed that sophisticated techniques are feasible for use in shelter studies. This conclusion is amply supported by the current HRB-Singer study, but the development of more sophisticated techniques requires further encouragement and support.

As in all previous studies, psycho-social problems did not directly threaten the existence of the shelter. There were, however, several significant observations that suggested if stresses were higher, the sample less well, psychologically, (more representative of the population), the time period longer, etc., psycho-social problems could have affected the shelter functioning and certainly the competence of a significant number of shelterees to meet the demands of the post-attack world. A sampling of these is given below.

- (1) There is a necessity for developing new folkways of living and the lowering of acceptable standards of behavior. If new folkways are to be developed, both in-shelter and carried over to post-shelter situations, this development must be controlled and directed. Experiences in Germany post-World War I and in Germany, France, Italy, etc., post-World War II clearly show that social disorganization can lead to a degrading of standards and the expression of hostility, noncooperativeness, crime, etc.
- (2) Personal problems became of sufficient strength to lead to conferences with the shelter manager. These included problems of sex, hostility, claustrophobic reactions, and depressions. While these were handled and did not cause difficulty, this must be interpreted within the framework of the weakness of simulation cited.
- (3) The discomfort factors and the medical problems cited agree well with previous studies and those that follow. In each study, factors such as behavior of others, lack of privacy, concern about the outside, inability to concentrate, boredom, etc., are included as medical complaints. The inclusion of these strongly indicates the existence of psychological problems.

The major strengths, weakness and implications of this study have been treated above. A summary indicates that the study has advanced knowledge regarding enshelterment and has pointed out requirements for further study. Perhaps its major function has been to clearly show that physical and psycho-social problems can exist in shelters but that these are amenable to control. The full identification of the problems and methods of control must be left to later research.

Ramskill, E. A., et al., Studies of the Bureau of Yards and Docks Protective Shelters: I Winter Trials, December 1962, NRL Report 5882.

The primary objective of this study was to evaluate the engineering aspects of the shelter, and psychological studies had to occur within this context. Full recognition is given to the effects of the methods used for subject sampling and the management policies implemented. The subjects were rigorously screened both psychologically and physically, and management procedures were designed

to maximize data collection. In short, the procedures and subjects used in the study minimized psycho-social problems.

Psychologically, the study is extremely important in two respects:

- (1) It clearly shows that sophisticated, valid, and statistically meaningful measuring instruments can be used in shelter occupancy studies.
- (2) Psycho-social problems can be identified and described and related in importance to physical shelter problems.

The utilization of ranking scales and Likert-type scales specifically designed in advance to be amenable to statistical manipulation represents a significant advance in shelter occupancy research. Such a procedure allows the statement of results in an unambiguous manner and provides for the measurement of interactions among factors. Further, it allows stated objectives to be tested and conclusions drawn regarding these objectives. Thus, the objectives of the present study were met. While it is true that the results cannot be generalized to Naval personnel or to OCD studies, these restrictions stem from the restrictions placed on selecting subjects for the sample and the shelter and management procedures used rather than shortcomings in the measuring instruments or the methods of their application.

The most interesting psycho-social problem found is the "behavior of others" which was ranked fifth of thirteen items as a discomfort factor. It retained this high ranking whether it was evaluated as a general problem or an acute one. While it is true that little overt hostility, etc., resulted from interpersonal interactions, the importance of this factor must be interpreted in the context of:

- (1) All subjects were Naval personnel in training and managers were officers or enlisted men of higher rank. Powerful forces were thus operating to keep overt reactions to a minimum.
- (2) The subjects were highly selected on the basis of:
 - (a) ego strength and adequacy of defense mechanisms
 - (b) psycho-social conflict

- (c) stability of interpersonal relationships
- (d) attitude toward authority
- (e) antisocial and acting-out behavior (heavy emphasis)
- (f) motivation and attitude
- (g) family status.

These findings again seem to point out the necessity for identifying psychosocial problems and the most efficient methods for handling them.

The design and use of measuring instruments is, however, of major importance to this report. In conjunction with the HRB-Singer study, it clearly indicates that few excuses are available for the nonuse of sophisticated, statistically meaningful, valid measuring instruments and procedures.

Hale, J. F., et al., Laboratory Investigations of Shelter Management Factors, January 1965, OCD-PS-64-57 Subtask 1519A.

The major purpose of this study was to open an investigation into the area of leadership in fallout shelters. It is frankly exploratory in nature and objectives are stated only in very general terms. No hypotheses are given to be tested and so none can be evaluated. Validation of this study cannot be considered since it is the only one of its kind. Validation then must consist of evaluation of the experimental design, the measuring instruments, and conclusions as stated.

The experimental design probably did not need to be exploratory only. This is most clearly seen in the later studies in which styles of leadership were varied. The vast technical literature on leadership could have provided data on which testable hypotheses could be based. Of equal importance is the personal preference of the "actor" (manager) for style one over the other two styles. Style one is a more authoritative one in which the manager remains the focal point of all shelter activities, being involved in all decisions of importance and presenting a behavioral role model for the shelterees. The debriefing clearly showed that his judgment and even his role playing was affected to an unknown degree by his personal preference for style one. The experimental design evidently precluded the use of sophisticated statistical techniques. Those used tended to be restricted to chi-square and correlational methods. The use of analysis of variance, factor analysis, etc., certainly is not precluded in this

type of study as is clearly shown by the studies of HRB-Singer and Ramskill, et al. (1962).

The experimental design also determined to an unknown extent the measuring instruments used. These were such that the chi-square tests often were not significant and it is difficult to determine whether this is so because there were in fact no differences or because the measuring instruments were insensitive to these differences. However, the conclusion, based upon the observation of in-shelter behavior, that management style one is the recommended style leads to two suggestions: (1) Measuring instruments should be sensitive enough to pick up differences open to observation. Thus, the nonsignificant results are probably a function of the measuring instruments. (2) Conclusions based on observation when specific instances of cross-rater reliability and validity are not given must be viewed with great caution. Observation to be scientifically valid must be rigorously controlled.

In view of the above discussion, individual conclusions cannot be evaluated. However, general conclusions can be.

- (1) Style one management is probably better than style two or three as a general technique. Its "goodness," however, is comparative rather than absolute. That is, it is better than styles two and three, but where it stands on a continuum of management styles is unknown. Support for the preference for style one is found in the general literature. It can perhaps be summarized that firmer leadership and imposed structure are required as the ambiguity and unfamiliarity of the situation increases. Support is also found in the earlier AIR study and in that done by the Bureau of Yards and Docks.
- (2) The importance of the early phases of the shelter period (manager present-manager absent) is clearly seen in earlier studies which remark on the confusion of the early hours. Also, the earlier AIR study in contrasting the shelter managers and their operation shows support. Finally, support is seen in the studies by Hammes, et al.

- (3) The manager's attitude and use of management material have been validated by Hammes' studies and by earlier studies as well. Well-trained managers obtain better results than untrained ones while experience in managing lends itself to the development of a proper manager attitude as well as skill in the use of materials in an on-the-spot training situation.
- (4) The conclusions regarding stress cannot be evaluated. The entire question of validity of the stressors used is open to question. A report that stress added a "fun reality" (p. 93) to the exercise raises serious questions as to stress validity. Further, the planted agitators behaved differently across the three situations and no means of comparing the stresses they generated is possible. Finally, stress has not been defined. A reading of the literature review of stress will clarify these points.
- (5) The conclusions regarding the behavior of children provide an excellent starting point for a fuller research effort. The ability to handle what appeared to be a serious problem with efficiency indicates that reluctance to enter this area of investigation need no longer exist.

It is always easier to criticize a study after it has been done than it is to anticipate sources of criticism in planning a study. The impression should not be held that the present study did not make a contribution to the knowledge of shelter occupancy studies. It has added to the base from which future research can spring and has provided an opportunity for future studies to be more experimental and less exploratory in nature -- certainly the data on management styles, the darkness experiment, information regarding children, and integration are necessary and useful for future research.

Hammes, J.A. and Osborne, R.T., Shelter Occupancy Studies at the University of Georgia. Final Report, December 1963. OCD Contract No. OCD-OS-62-226, Subtask 1521A.

Hammes, J.A., Shelter Occupancy Studies at the University of Georgia. Final Report, December 1964. OCD Contract No. OCD-OS-64-77, Subtask 1521A.

The shelter occupancy studies carried out by Hammes, et al., at the University of Georgia are noteworthy in many respects. One of them is their willingness to explore the effects of an austerity program on individuals confined to a shelter. While the early studies were confined to thirty people, the study during the summer of 1964 involved three hundred with all placed under conditions of austerity.

The comments thus far already have included some discussion concerning Hammes', et al., studies. Differences as well as concurrences have been indicated. It is important to observe that the findings from the HRB-Singer study now being reported do not agree with the conclusions reached by Hammes, et al., that there are no psychological problems.

Healthy men, women, and children can endure two weeks' isolated shelter confinement under conditions of severe austerity without suffering deleterious physiological or psychological effects (1963, p. 135). and

Normal, healthy children and adults can be expected to endure two weeks' shelter confinement without any decrement in mental efficiency, loss of psychomotor coordinations or measurable changes in personality (1964, p. 84).

The HRB-Singer study reports that statistically significant changes do indeed occur, that individuals do approach confinement with great apprehension and that appropriate preventative actions (in this case by hospital personnel) are very important in creating a positive psychological environment. However, care must be taken in comparing research carried out by the two groups. For example, "deleterious, psychological effects" is not defined nor, in discussing effects in personal and social adjustment scores, was the term "adverse" clarified. The HRB-Singer study points out the need for setting up clearly defined concepts in the entire scope of shelter occupancy research.

For the most part, Hammes' studies suffer from limits common to all exploratory studies that they "merely lead to insights or hypotheses but do not test or demonstrate them" (Sellitz, et al., 1961; p. 64). Research previous to these studies, as well as their own studies, contributed insights into shelter occupancy that could have been tested experimentally. The early study of the Bureau of Yards and Docks showed that experimental designs using a limited number of objectives could be set up. As it now stands, July, 1965, Hammes' studies have not produced conclusions drawn from statistically tested hypotheses upon which future research can be based.

In each of the studies, the conditions were changed so that it is impossible to follow a set of behavioral variables throughout the research program (i.e., psychological measurements, Table 19, p. 90, 1963).

Questions must be raised as to whether the conclusions quoted earlier are in fact supported by statements made in the discussion of the studies. Closeness of other people (1962, p. 52) as being a source of stress would indicate that a psychological problem existed. The second study itself (1964, p. 42) makes a good case for the presence of problem: i.e., that many medical complaints could have had a psychosomatic basis.

As indicated (1963, p. 59), sociometric analysis provides insights into the acceptance or rejection of members. Therefore, it is difficult to understand how the first three conclusions stated can be reached. Conclusion four appears to be a valid conclusion although the discussion gives little basis for this. The Behavioral Patterns (p. 66) do not show us patterns of behavior but rather body position and physical activity. Table 19 (1963, p. 90) presents the instruments used to measure mental ability and psychological adjustment with different instruments used for each experiment. Different ones are also introduced in the later studies (1964). Greater contributions to knowledge would have been effected had the number of tests been reduced and the same ones given each time. The use of some of the tests is open to question. The California Test of Mental Maturity (Short form, 1964, pp. 37-38) should be used for verbal scores and not for diagnostic profiles (see Thorndike and Hagen, p. 571). The School and College Ability Test (SCAT) is a test used to measure capacity of students to undertake more schooling rather than being a strict test of intelligence. There are short tests (20-30 minutes) available that measure this well and probably should have been given some consideration in preference to the longer one used (60-75 minutes).

It is very difficult to compare the results of the HRB-Singer study to those of Hammes when conclusions drawn by him are given in such nonspecific terms as "...the personality test revealed that most shelters were near the average on most characteristics..." (1964, p. 47). It is strongly recommended that a separate section called "Results" be included in future reports.

An evaluation of these studies would have been easier had the report followed the format recommended by many (Seltz, et al., 1961) and carefully delineated by the American Psychological Association in its guide to published reports. The latter states that the goal of scientific writing is effective communication of which clear organization is an important condition. It states, "The organization of an article that reports an experiment has now become fairly standard. The principal divisions of such an article are Problem, Method, Results, Discussion, and Summary" (APA, 1957, pp. 9-10). Not only would the previous reports have been easier to follow, but the findings of the studies would be clearer and easier to adapt to future research.

Definition and Description of the Psychological Processes Occurring Within the Shelter.

Psychological adjustment in the studies reviewed to date appears to be positively related to the ability of individuals to construct goals and motivations which include a realistic appraisal of their situations. Adjustment falls short of desirable levels when one or more of the following conditions are psychologically predominant.

1. Generalized fear of the unknown. The reduction of a threat to personal safety is a frequent goal of individuals in an emergency or on an assignment involving a high degree of danger. Attainment of this goal is frustrated when unknown or exaggerated fears persist regarding the nature of the hazards one is facing. The result of this frustration is made evident through a lowering of morale and passive, regressive behavior, or hyperactive random behavior bordering on panic.

2. Lack of situational structure. Goal attainment is persistently thwarted when the goals and the paths leading to them are undefined. Again, the general results are a reduction of morale and overly passive or inconsistent, random behavior. Individuals finding themselves in threatening situations will attempt

to induce structure in both the physical and psychological fields. This may comprise a goal in itself (desire to reduce anxiety or fear of the unknown), or it may be a preliminary step toward a defined goal (for example, escape from a threatening situation). In either case, the goal is unobtainable if the individual either lacks the information necessary to obtain the desired level of structure or for some reason is unwilling to accept the information that is available. Structure as a concept serves to render the individual more psychologically able to deal with his environment or situation. As such, attainment of structure is not limited to gaining information about the environment per se. Structure may be also curtailed by the unavailability of comforting or reassuring possessions, the nonapplicability of familiar behavior patterns, or the loss of contact with friends or leaders.

3. Resentment of confinement. Physical confinement will serve to thwart any goal attainment when the goal lies outside the bounds of the confinement. The result of this frustration may take the form of apathy or hostile aggression, and, if present, will usually be directed toward whatever the individual considers to be the confining agency. Psychological confinement will produce the same reactions, but is more subtle in nature. Severe psychological confinement presents a threat to the individual's ego or self-esteem, and will interfere with familiar, structure maintaining, behavior patterns.

4. Loss of identity. Situations posing a severe threat to the personal safety and survival of the individual often negate previously established mechanisms of personal identity. Individuals who resent this status leveling effect may become frustrated when attempts to regain their prior status are to no avail. Failing to regain status recognition, they may revert to regressive behavior characterized by withdrawal, overt hostility, and increased possessiveness. Frustration may also be produced as a result of the individual's inability to function in a prior established capacity of control or responsibility.

The literature collation to date thus supports the conditions regarding model building. Further evidence at hand indicates that defining the shelter environment in terms of operating psychological processes will provide valid definitions which can be utilized in real life shelters. In addition, the data derived from the literature furthers knowledge of the nature of the psychological processes.

Task II - Discovery and Use of an Analogy to the Model

Exploration and Evaluation of the Psychological Environment in Mental Hospitals.

The results of the literature collation and contacts with mental hospital professional personnel indicated the relevance of using admission wards for selected patients as analogues of protective shelters. The feasibility of considering the shelter as a psychological environment received consensual validation from the psychiatrists and psychologists consulted at the participating hospitals and had the feasibility of using admission wards as an analogue to the shelter.

Information attained from professional hospital personnel and the literature collation led to the derivation of eight factors of confinement that are common to admission wards for selected patients and occupants of protective shelters. These make up the psychological environment of confinement. They have been defined previously on page 7 but are listed here for the convenience of the reader.

1. Physical confinement was defined as the inability to move freely within the confinement area and to leave this area at will.
2. Psychological confinement was defined as the inability to implement decisions affecting oneself.
3. Lack of privacy meant the inability to seclude or isolate oneself from others at will.
4. Lack of familiar physical supports meant the absence or unavailability of personal belongings, such as, automobiles, jewelry, cosmetics, wearing apparel and similar meaningful items.
5. Lack of familiar behavior patterns applied to the inability to carry on normal activities found in work, recreation, religion, and other areas.
6. Lack of familiar interpersonal relationships meant the loss of normal contact with family, friends, co-workers and others and the inability to re-establish them (e.g., by telephone) at will.
7. Loss of personal identity referred to lost individuality and the fact that familiar roles could not be played.

8. Fear was defined as an emotion experienced when one is confronted by threatening danger, which may be real or only perceived. It may evolve from interactions with, for example, peers, supervisory personnel, unfamiliar surroundings, and ambiguity of roles to be played.

The psychological environment will be studied in the following chapter under Problem 1 which was set up to discover relationships between the psychological environment produced by confinement and human behavior.

Chapter III

PROCEDURES OF THE INVESTIGATION

The present study was designed to learn if relationships exist between certain behavior patterns and certain psychological stresses occurring during confinement.

Task III - Measurement of Psychological Inputs, Processes, and Resultant Behaviors

The topics related to Task III include those given in the Statement of Work but are presented in the following order.

1. Description of Independent Variables - Measurements of Behavior.
2. Description of Dependent Variables - Measurements of Confinement Acceptance.
3. Description of Diagnostic Tool - Two-Man Game.
4. Development of Instruments to Measure Independent Variables - Measurements of Behavior.
5. Development of Instruments to Measure Dependent Variables - Measurement of Confinement Acceptance.
6. Development of Diagnostic Tool.
7. Administration of the Instruments.

Description of Independent Variables - Measurements of Behavior.

The instruments that were used to measure behavior numbered three: (1) The Nurses Observation Scale for In-Patient Evaluation; (2) A Patient's Self-Description Scale I; and (3) The Thematic Apperception Test.

Nurses' Observation Scale for In-Patient Evaluation.

Description.

The Nurses' Observation Scale for In-Patient Evaluation, also known as NOSIE, was developed by Honigfeld and Klett (1964) of the Central Neuropsychiatric Research Laboratory at Perry Point, Maryland. It is characterized

by ease of administration and lack of need for interpretation on the part of the administrator. It is not heavily loaded with indications of deep (extreme) pathology. It was necessary to eliminate some items of this type and replace them with items indicative of milder forms of pathology. To use this scale a nurse rates the behavior of each patient, the scoring of which is described in detail in the section which follows. A copy of the scale will be found in Appendix D, page 161.

The seventy-four items cover a wide range of activities which through a factor analysis procedure arrange themselves into eight groups:

1. Social Competence referred to being able to care for oneself as a social being thus carrying out relatively simple tasks considered appropriate for adults. An example of this category is: Has to be told to follow hospital routine. A high score indicated high social competence.
2. Social Interest meant an active concern for participating in activities involving other people. An example of this category is: Talks freely with volunteer workers or other visitors. A high score indicated high social interest.
3. Personal Interest concerned efforts to maintain oneself in a socially desired manner for interacting with other people. An example of this category is: Keeps his clothes neat and clean. A high score indicated high personal interest.
4. Cooperation was evidenced in voluntary or requested helpfulness by the patient. An example of this category is: Help out when asked. A high score indicated a high degree of cooperation.
5. Irritability meant showing a tendency toward annoyance in situations which, of themselves, do not warrant strong negative or disorganized reactions. An example of this category is: Is impatient. A high score indicated a high degree of irritability.
6. Manifest Psychosis referred to that conflict behavior which was within rather than without the individual. Solutions to problems were available within the individual but he was unable to arrive at them. An example of this category is: Talks, mutters or mumbles to himself. A high score indicated a high degree of manifest psychosis.

7. Paranoid Depression meant behavior that showed the individual believed or thought he had no real control over his environment which was hostile. An example of this category is: Accuses others of wanting to hurt him. A high score indicated a high paranoid depression.

8. Tension referred to an underlying uneasiness, mental or emotional strain. An example of this category is: Looks tired and worn. A high score indicated high tension.

Scoring.

Each patient was rated on a five point Likert type scale (Tiffin, 1952, pp. 470-471). The nurse judged whether a particular item was a true description of the patient's behavior: 1. Never; 2. Sometimes; 3. Often; 4. Usually; or 5. Always. The choice was selected by placing a circle around the appropriate number before each item, namely, 1, 2, 3, 4 or 5.

In order to obtain a final score for each category, the value circled beside each item was transferred to a master scoring sheet (see Appendix E, p. 167). Some items go in one category, others in another according to the scoring key. For this study, each category was treated as a test and no total score was developed.

Some statements express undesirable behavior. Scores for these statements are reflected, that is, a "never" would receive a score of 5 instead of 1. if the patient never exhibited that behavior.

Scores in each category cannot be compared because some categories contain more items than others. The categories are not combined because the first four are socially desirable while the last four are not. However, in every case, a high score indicates a high magnitude of the behavior described by that category.

Self-Description I (Leary)

Description.

The patient's self-description scale is a standardized test by Leary (1956) to reveal self-perceptions in terms of common descriptive phrases. Modifications in the format were necessary to maximize the scale's usefulness

in the present study. A copy of the scale as used in this study will be found in Appendix F, page 171.

To use this scale, a patient selected statements which he felt described himself at that particular time.

Although the scale may be used in several ways, one of which results in sixteen different scores, two major categories were selected for this study, namely, Dominance and Love. Examples of statements representing Dominance are: dictatorial, bossy, and able to give orders. Examples of statements representing Love are: gives freely of self, helpful, and likes everybody. Next to these statements are circles; the patient blackened the circles next to the statements he felt applied to him at that time.

Scoring.

The scores from the leaflet containing the statements are transferred to a master scoring sheet (see Appendix G) according to the category they are in. Thus, those in row "P" are put in the boxes labeled "P," those in row "A" are put in the boxes labeled "A," and so forth through the letter "O." Scores from Page 1 go in column 1 and Page 2 in column 2. The computations indicated on the scoring sheet are then carried out. It will be noted that a high Dominance score precludes a high Submission score while a high Love score precludes a high Hostility score.

Thematic Apperception Test

Description.

The Thematic Apperception Test, also known as the TAT, is a projective technique designed by Murray to reveal some of the dominant drives, emotions and conflicts of personality. The test indicates emotional responses to confinement on a conscious and unconscious level. Six cards were chosen as relevant to the stresses likely to be produced by confinement:

3 BM On the floor against a couch is the huddled form of a boy with his head bowed on his right arm. Beside him on the floor is a revolver.
(Drawing by Christiana D. Morgan.)

4 A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her. (Illustration by C. C. Brill, reproduced by special permission of Collier's, copyright 1940, by the Crowell-Collier Publishing Company.)

14 The silhouette of a man (or woman) against a bright window. The rest of the picture is totally black. (Drawing by Christiana D. Morgan.)

5 A middle-aged woman is standing on the threshold of a half-opened door and looking into a room. (Drawing by Samuel Thal.)

16 Blank Card.

18 BM A man is clutched from behind by three hands. The figures of his antagonists are invisible. (Drawing by Christiana D. Morgan.)

To use this projective technique, the subject is presented each card individually. He is asked to tell what he thinks is happening, what led up to the event, and how he thinks the story will end. The story is recorded and later a qualified person is able to identify the subject's feelings which he, the subject, projected into the story.

Scoring.

The TAT may be used several ways but for this study included those methods thought to elicit the greatest amount of information. The first two are objective analyses and yield quantitative data; the latter two are descriptive only. Partial scoring guides are found in Appendix H.

1. Emotional Tone. Each picture was rated on a rating scale of five degrees: -2, Complete failure; -1 Conflict with attempt at adjustment; 0, Descriptive, lack of affect; +1, Aspiration; and +2, High aspiration. The scores for each of the six pictures are added. For the purpose of inclusion in the data analysis performed by means of computer (negative raw scores are difficult to handle), fifty points were added to each score. Thus, a -2 became a 48. An example of conflict in emotional tone would be in picture 3BM: A child is crying because he has been scolded; he has been disobedient. This would be scored -1.

2. Outcome of Stories. Each picture was rated on a rating scale of seven degrees: -3, Complete failure; -2, Some failure; -1, Some frustration; 0, Continuance of an ordinary situation; +1, Moderate success; +2, Success; and +3, Great success. The total scores are treated in the same manner as Emotional Tone. An example of successful outcome would be in picture 16: A family plans and carries out a picnic. This would receive a score of +2.

3. Interpersonal Behavior Classification by Code. Each picture was classified according to how it fit into a pre-established code (see Appendix H). A picture may have one or several codes assigned to it, depending upon its content. The scoring is descriptive rather than quantitative. The following eighteen codes were used: Power, Narcissism, Exploitation, Punitive Hostility, All Forms of Pure Hostility, Unconventional Activity, Deprivation, Masochism, Weakness, Conformity, Trust, Collaboration and Agreeability, All Forms of Pure Love, Tenderness, Generosity, and Success. An example would be in picture 3 BM: Boy has a gun, is crying, can't decide about using it. This would be categorized in Codes H (Masochism: grief, suicide) and I (Weakness: indecision).

4. Check List of Themes. Each picture was classified according to the themes prevailing. A picture could have one or more themes. The total number of themes possible are many, but the framework is given here briefly. The scoring is descriptive, rather than quantitative. The themes fall into the following major categories.

I. Disequilibrium

A. Interpersonal

1. Parent or parent figure

a. Pressure

b. Succorance, etc. (20 items)

2. Partner (30 items)

3. Peer (19 items)

4. Sibling (9 items)

B. Intrapersonal (39 items)

C. Impersonal (12 items)

II. Equilibrium (similar breakdown as for disequilibrium)

An example of categorizing themes would be in picture 16: A family plans and carries out a picnic. This would be categorized as Equilibrium, Interpersonal with Contentment (blissful home situation) as well as Ordinary family activity (working together).

Description of Dependent Variables - Measurement of Confinement Acceptance.

One instrument was used to measure confinement; namely, the Confinement Acceptability Scale — Self-Description Scale II.

Description.

This scale measures the patient's reactions to ward life. It consists of items which the patient checks according to how frequently they bother him: always, often, sometimes, rarely or never. A copy of this scale will be found in Appendix I, page 187.

The seventy-nine items in the scale are arranged in the following eight categories:

1. Physical Confinement was made up of items related to a patient's inability to move freely within the area of confinement or to leave and return as he desired. An example of an item in this category is: Having to get up and go to bed at a certain time. A high score indicates that physical confinement does not bother the patient.

2. Psychological Confinement annoyance indicated an inability to implement decisions affecting oneself. An example of an item in this category is: Not enough choice of clothing. A high score indicates that psychological confinement does not bother the patient.

3. Lack of Privacy indicated that the patient was unable to seclude or isolate himself from others as he wished. An example of an item in this category is: Can't be alone with visitors. A high score indicates that the patient does not object to lack of privacy.

4. Lack of Familiar Physical Supports included items which concerned the absence or unavailability of personal belongings. An example of this is: Not sleeping in my own bed. A high score indicates that the lack of familiar physical supports does not annoy the patient.

5. Lack of Familiar Behavior Patterns was concerned with the inability of the patient to carry on normal activities. An example of an item in this category is: Having to give up my previous work schedule. A high score indicates that the patient is not annoyed by the lack of familiar behavior patterns.

6. Lack of Familiar Interpersonal Relationships concerned a loss of the normal contact with family friends, co-workers, and others, and an inability to re-establish these relationships as desired. An example of an item in this category is: Difficult to learn what my old friends and family are doing. A high score in this category means that the patient is not annoyed by the lack of familiar interpersonal relationships.

7. Loss of Personal Identity referred to the loss in individuality and the fact that familiar roles cannot be played. An example of an item in this category is: Reduced opportunity to act as parent, husband, or wife. A high score indicates that the patient is not bothered by the loss of identity.

8. Development of Fears referred to the experiencing of emotion when confronted with threatening danger, real or perceived. An example of an item in this category is: Not knowing what drugs and treatment I will get. A high score indicates that the patient is not bothered by fears.

Scoring.

The scores from the leaflet are transferred to a master scoring sheet (see Appendix J) according to a scoring key (see Appendix K) based upon the eight categories. The score for each item is the number circled beside the item: 1. Always; 2. Often; 3. Sometimes; 4. Rarely, and 5. Never. Thus, a "never" receives five points. For this study, each category was treated as a test and no total score was developed. Scores in each category are not directly comparable because some categories contain more items than others. However, a high score in a category indicates a high acceptance of the confinement described in that category.

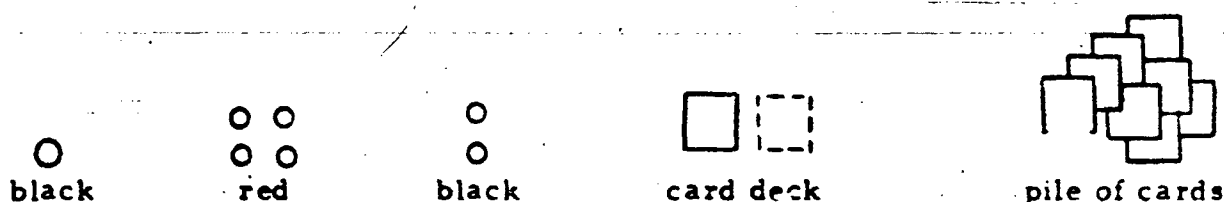
Description of Diagnostic Tool — Two-Man Game.

Description.

The Two-Man Game developed for this study makes use of items likely to be stocked in a shelter, namely, checkers and a deck of playing cards. In

order to simplify the scoring, the picture cards are removed from the deck of cards and the checkers are used as an aid in scoring.

One suit of cards (Ace through 10) is given to each of the players. The remaining two suits are shuffled and placed in a stack face down in the center of the table. Beside this deck, an arrangement of checkers is made.



Black = 10 points

Red = 5 points

Play starts with each player selecting and removing one of the ten cards from his hand. Once this card has been removed, the player may not change it. He places it face down on the table in front of him. The top card from the stack on the table then is drawn but not turned face up. Taking turns, but beginning with Player A, each player, without showing his drawn card to the other, decides and states to the other that (a) he can top the value of the deck card and also the value of the card of the other player and so wishes to take the trick by himself or (b) that he wishes to pool his card with the other player to win the trick together. All cards are then turned face up. The combination of cards with the highest total value wins; but if a single card of one player is higher, it wins, provided he has chosen to win by himself. The game is over when all of the cards in the deck have been exposed. When the ten cards in each hand are used, the pile is sorted and each player begins again with a new ten card hand. Since there are 52 cards in our deck, two subgames will be played. The pile will have to be sorted twice. A trial run is suggested until the players become familiar with the game.

Scoring.

Scoring takes place in the following way. A single player winner takes the two black checkers on the right. If the two agree to cooperate and win together, the two share the four red checkers. If one chooses not to cooperate,

but the other does, and both win, the former gets the same winnings as a single player winning (2 black) while the latter gets one black. If they lose, each contributes one red checker. The checkers are counted at the end of the game. The one with the highest number of points can receive a reward (candy, candy bar, cigarettes, etc.).

The two-man game uses the following mathematical matrix:

		Player 1	
Player 2	-5, -5	10, 20	
	20, 10	10, 10	

Development of Instruments to Measure Behavior.

In selecting instruments to measure behavior, it was found that most instruments measured psychotic behavior. This study was interested in the behavior of normal or near-normal individuals so that the sample would be very nearly like a sample of people confined to a shelter. Thus, it became necessary to create new instruments and to adapt those already existing. Both procedures were followed.

The NOSIE appeared to be the only scale that could be used in the study to objectively verify the subjective feelings to be reported by the patients in the other instruments. Even so, several items were changed or dropped because of their inappropriateness for normal behavior. It is true that other types of reporting could have been used. Anecdotal records could have been kept, time samples could have been run or an interaction analysis could have been made. However, these could not be used because the people in the hospitals (nurses, nurses aids, etc.) were not competent to undertake some of them and in many cases could not take the required time. Thus, an instrument that would use a minimum of time and effort was desired. The study also was interested in using instruments that would be very easy to administer. In no case should the person filling out the questionnaire become confused or misunderstand. The NOSIE seemed to fulfill these requirements.

The Self-Description I Scale by Leary was chosen so that subjective feelings could be recorded. It was used without change. This seemed to fulfill the requirements for ease in administration.

Development of Instruments to Measure Acceptance of Confinement.

One of the criticisms of previous shelter studies is that while the physical model of the shelter may have been appropriate, the psychological environment created was unrealistic. If one is to investigate psycho-social problems likely to arise during enshelterment, one must create a realistic psychological model of this environment. This model should define the operating psychological factors in specific terms and must not be tied to the physical factors producing them. Thus, the generic term "anxiety" must be replaced by definitions descriptive of the psychological processes occurring (loss of control, restriction of psychological space) and these must be further defined, if necessary (psychological space in terms of goals, paths to goals, levels of reality, etc.). These, in turn, must not be tied to physical events but rather must be so defined that several experimenters utilizing the manipulation of different physical factors can create comparable psychological environments.

Psychologically, the shelter environment following a thermonuclear attack will contain several sources of stress (anxiety-producers) which will generally not be supportive of the individual's concept of himself. That is, the very nature of the circumstances existing post-attack will be such that a significant number of shelter occupants will perceive these circumstances as personally threatening. The threat that is of particular concern is one which tends to reduce the individual's sense of adequacy, worthwhileness, and individuality. There will, of course, also be sources of psychological support in the shelter. These circumstances will be supportive of the self-concept and will tend to counteract the above negative factors.

Considering the negative factors first, it is apparent that one significant source of stress will be the perceived loss of control of one's own destiny. The psychological space available to the shelter occupant is likely to be quite different from that in which he ordinarily moves. It will be significantly restricted with old goals unattainable, new goals desirable, and ways of reaching these goals unfamiliar. The resulting anxiety will undoubtedly call into play new defense mechanisms or the strengthening of old ones. Activity as an anxiety reducer will be to a large extent unavailable due to physical space limitations in-shelter.

Separation from and fear of loss of loved ones are obviously important to all but especially to children and the aged. More subtle, however, is the possible effect on parents in their prime. Threats to the self-concept of "Mother," "Father," "Husband," or "Wife" may well occur as a function of an externally imposed set of circumstances that makes these roles largely unplayable in a familiar form. Other self-concepts (successful business man, club woman, etc.) may also be threatened. Each person receives positive support of his concept of himself throughout his or her life by playing these roles or other roles successfully and by inputs from other significant persons. If this complex of positive inputs is disrupted, anxiety can be expected to increase and defenses against it erected. The defenses may well be adaptive but certainly may also be mal-adaptive. Preshelter behavior is a useful but dangerous method of predicting post-attack behavior. An individual who successfully copes with the stresses and anxieties of managing a large firm may do so only because of the positive inputs he receives in his nonvocational life. Separation from his wife and/or children may remove the source of significant positive inputs and so reduce his functioning efficiency to a large extent.

Stress and anxiety arising from ambiguous situations containing some perceived elements of danger represent reactions to a wide variety of actual physical circumstances. In this case, it is not the actual physical situation that is of importance but rather the fact that it is ambiguous and has some perceived element of danger. In the shelter, ambiguity will arise from the unfamiliarity of the shelter itself as well as from a lack of knowledge regarding events and circumstances in the outside environment. In such situations, the tendency to perceive the ambiguous as dangerous will be reinforced by a real probability that the environment outside the shelter is dangerous.

Lastly, the anxiety connected with the possibility of physical death is certainly important. Threat to life tends to be less well tolerated as this threat encompasses increasing time periods. The possibility of apathy and/or depressions as reactions to this stress is of obvious importance in shelter.

Positively, the shelter manager and his assistant, if any, comprise a significant source of input (Grinspoon, 1963; Rasmussen, 1963). Persons "in charge", and thus occupying status positions, control the means of making available to many persons self-concept enhancing inputs. In addition to providing positive support of the self-concept, the managers are able to manipulate the

means of self-concept support to meet the idiosyncratic needs of many shelter occupants.

Common to both positive and negative factors in the psychological shelter is contagion. Attitudes and emotions are rarely, in groups, restricted to the person having them. Rather, they tend to spread and in the spreading gain reinforcement and grow in strength.

At present, because of lack of sufficient and pertinent data, it is difficult and costly to create an environment that contains the above psychological conditions and also allows the investigation of numerous factors. However, many state and federally operated mental hospitals provide circumstances both physical and psycho-social, that are quite analogous to the psychological model proposed in this study and allowed investigation of the above cited factors. One investigator's past experience in this area substantiated this. Additionally, as indicated previously, discussions with psychiatrists and psychologists in administrative positions indicated concurrence and the expressed willingness and desire to cooperate in the research project. (See pages 10 and 96 for fuller discussion of similarities between hospital patients and shelterees.)

The patients studied were selected on the basis of psychiatric interviews and psychological testing routinely performed by the hospital so that psychotics, severe neurotics, and severe character disorders were eliminated. (See Appendix B.) This selection procedure increased rather than decreased the representativeness of the sample since persons with these disorders are not found in the general population outside mental hospitals. The selected group were in good contact with reality, had an ability to react to the stresses inherent in being in the hospital, and were capable of cooperating with the person(s) conducting the research. The use of this type of people for research in personality dynamics, response to stress, description of psycho-social processes, etc., is well accepted among professional psychiatrists and psychologists and has led to fruitful research in the past. The question, however, is their suitability for the research here. Evidence (Gibby, et al., 1960; Davis, et al. 1961; Wexler, et al., 1958, and others) indicates that they were not only suitable for this investigation but are desirable as subjects when other psycho-social problems are being investigated.

The physical environment of the hospital provided for the restriction of physical movement in a crowded living space, lack of variety and choice in food, restricted bathing and washing facilities, lack of privacy, lack of storage space for personal goods, etc., as would the protective shelter.

Motivation also was comparable. In the hospital, as well as the shelter, a decision is made to undergo an unpleasant experience in order to avoid a less desired alternative. In both cases "confinement" is preferred to remaining in the outside world. However, in both cases a desire arises after "confinement" to leave and re-enter the outside world but this can only be done when the appropriate authority decides if it is safe to do so. Defections do occur in mental hospitals as they do in protective shelters and provide an opportunity to study the factors responsible for these defections and the effects of them on the members of the group who do not defect.

Leadership in stressful circumstances sometimes can be investigated. Mental hospital wards are staffed by psychiatrists, nurses, and ward attendants who vary in training, competence, and personality. Leadership methods vary from strict authoritarianism to almost laissez-faire. Delegation of responsibility to patients is frequent. The effects of various types of leadership on behavior, attitude, and morale thus could become available for study. However, the investigation being reported did not lend itself to the valid study of leadership and this area, therefore, was omitted.

Psychologically, the processes operating in a protective shelter are reproduced to a significant degree. There is a perceived loss of control of one's own identity, separation from loved ones and concern about their well-being, concern with the possibility of physical death, and the necessity for functioning in an ambiguous situation containing some perceived elements of danger. These have been discussed previously in terms of enshelterment but the same psychological processes and problems occur in the mental hospital. For example, the hospital environment is as ambiguous and unfamiliar to the patient as is the shelter to the shelteree and both attempt to adjust to their environment in the same way. The shelteree fears an unfriendly world upon emergence from the shelter and the patient knows that society does not readily accept discharged mental patients but often greets them with suspicion, hostility, and aloofness.

It must be clearly indicated that the patient population studied was representative of the American population generally. Statistics indicate that one out of every ten Americans will spend some time in a mental hospital during his or her lifetime. Hospitalization is not restricted to those who are overtly psychotic but also is recommended for basically mentally healthy individuals with temporary personal problems. Children and adolescents are also hospitalized and could serve to increase the representativeness of a sample; however, they were unavailable for this study. Thus, the sample chosen to be used in the present study probably was more representative of the general population than volunteers. Also, the selection allowed for the exercise of greater control than would otherwise have been the case. (See pages 10 and 96 for discussion on similarities of patients and shelterees.)

The measuring instruments to be utilized in the proposed study must be sensitive enough to reveal psychological processes at an unconscious as well as at a conscious level. Psychological problems must be identified even if they do not show themselves in overt behavior. It is not necessary for a full blown rebellion to occur in order to state that psychological problems serious enough to threaten survival exist. Previous measuring instruments (diaries, questionnaires, rankings, behavioral observations) have been of this nature and undoubtedly have been insensitive to extremely important psychological factors. The psycho-social problems that this study investigated reside within the individual. The effects of psychological stresses can be seen only insofar as they are revealed in individuals. Thus, the measuring instruments must include some generally classified as "clinical instruments." The Thematic Apperception Test was selected to be studied in depth rather than several to be studied in breadth. By utilizing a projective measure, the psychological processes operating in the subjects as a result of being subjected to physical and psychological stresses comparable to those found in protective shelters could be determined and described.

Development of Diagnostic Tool: Two-Man Game

In a two-man game a situation is created such that the participants can behave in one of two ways. The first alternative consists of viewing the game as a zero sum game (cournot or imum) in which only one player can win and his winnings result in a corresponding loss to the opponent. The other alternative

is a nonzero game sum (pareto optimum) in which the winnings of both players are optimized through cooperation. The game itself is structured so that either alternative is possible. By observing the behavior of the players, the strategy chosen reflects an attitude of strong competition (hostility) or cooperation and, additionally, signs of depression, apathy, and anxiety can be detected. By choosing the appropriate game content and situation, the shelter manager would have a very useful and workable tool for identifying possible psychological problems and can then take appropriate action.

Administration of the Instruments.

Hospitals from several areas were visited at the beginning of the study to learn of their suitability for the investigation as well as to determine if they might be both willing and able to participate. One individual in each hospital accepted the responsibility for coordinating the research activity. The names of these appear in Acknowledgments, page v. Some hospitals ruled themselves out in the beginning while one or two others admitted few patients who met the stringent criteria and, therefore, contributed less to the study than originally anticipated. Of a total of thirty-six cases, three were not included in the data analysis because parts of tests were not given so that complete scores were unavailable for them. A total of thirty-three cases made up the sample, distributed in the following way:

	<u>Male</u>	<u>Female</u>
Hospital a:	5	11
Hospital b:	7	0
Hospital c:	0	5
Hospital d:	1	0
Hospital e:	2	0
Hospital f:	1	1

The tests were administered in approximately the same manner in each of the hospitals. As part of the admittance procedure of a patient meeting the criteria of the study, the sets of tests used in the study were given. The first were given within twenty-four hours of admission, and were known in this study

as measurements of early confinement. All of the tests were administered a second time within three and four day later. These were known as measurements of later confinement, because in actuality, confinement had not been ended.

NOSIE was filled out by a nurse, nurse's aid, or attendant of the ward. This person was to have had adequate opportunity to observe the patient. A psychologist or other qualified person administered the projective tests at approximately the same time. The patient himself filled out two instruments, the Self-Description I (Leary) and the Self-Description II (Confinement Acceptance Scale). All were returned to the coordinator at the hospital who in turn forwarded them to the investigators for correction and analysis.

The instruments were administered between 1 December 1964 and 30 May 1965. Because the study took place during months when cold weather was predominant, heat, as a variable could not be studied. Because of the unanticipated dearth of patients meeting the criteria of "normality," the number studied at any one time was insufficient to study leadership in any manner.

The two-man game had not been developed in time to play at the hospitals. Therefore, it was played with pairs of children and teenagers. In each case, one known to be cooperative was paired with one known to be noncooperative. Three sets of games were played with three pairs of participants.

Chapter IV

STATISTICAL TREATMENT OF DATA AND RESULTS

While the prime emphasis of this study was to gain familiarity with behavior during confinement, the initial design of the research was carefully drawn up so that analyses could be carried out in addition to the simple identification of factors necessary to formulate problems for subsequent research. Thus, the research design should be classified as descriptive rather than exploratory or formulative (Selltitz, Jahoda, Deutsch, and Cook, 1961).

One of the foremost purposes of this study was to find out what behaviors or behavior patterns accompanied adjustment or nonadjustment to confinement. The statistical procedure used to determine this was a correlational analysis. In addition, factor analyses were carried out to identify major patterns or groupings instead of isolated behaviors exhibited early in a period of confinement and later in the period of confinement. The factor analyses were followed by a varimax (orthogonal) rotation of the factors to determine which measurements contributed most to each factor. Finally, a correlational analysis was made of the factors to determine their relationship with one another.

Some indication of a change in behavior from the beginning or early period of confinement to a later time in the confinement was desired. A *t* test, making use of the *t* statistic developed by R. A. Fisher, was used to test the null hypothesis that the means of the scores taken early in confinement did not differ significantly from the means of the confinement scores taken later. This procedure took into account the quantity of change. Another statistical procedure took into account only whether there was a decrease, an increase, or no change. The statistical procedure for the latter hypothesis is the chi-square analysis.

Furthermore, to obtain insights into possible differences or variations of confinement, an analyses of variance was employed using data from the hospitals that contributed the most cases. Since the number in the sample is small, great weight should not be given to this analysis. Rather, it should be looked upon as a means to form direction for further study.

Several statistical procedures usually contained in data analysis were included. These were intercorrelations among the variables as well as a measurement for reliability. The Kuder-Richardson Formula 21, based upon internal

consistency, was used to determine reliability. The type of validity of the instruments at this stage of development, pending cross-validation procedures, is identified only as construct validity showing that the variables correspond to meaningful traits or constructs (Thorndike and Hagen, 1961).

Statistical Summary of Scores Taken At the Beginning of Confinement.

Reliabilities of the Measurements.

Table 1 presents a statistical summary of the measurements given to the patients within twenty-four hours of their arrival at the hospital. In the table are found the tests' means, standard deviations, variances, sums of squares, standard errors of measurement, standard errors of test means and reliabilities found with Kuder-Richardson Formula 21 which underestimates the reliability.

The reliabilities reported are all acceptable as recommended by Diederick of the Educational Testing Service (1960) who says that good tests achieve reliabilities between .60 and .80 although test publishers work for reliabilities of .90 or better. The lowest reliability is .55 for Emotional Tone of the TAT, while the highest is .94 for Psychological Confinement.

All of the reliabilities for the Confinement Acceptance Scale are above .88.

Intercorrelations Among Three Predictor Instruments: Measurements of Early Confinement Behavior

Tables 2 through 5 show the relationships that exist between the instruments that measured behavior (called the independent variables or, for this study, the predictors) and also the instrument that measured feelings of acceptance toward confinement (called the dependent variables or, for this study, the criteria). Coefficients of correlations are reported using the Pearson product moment r .

A frequently used statistic in psychological and sociological research is that of the product moment coefficient of correlation used to measure the degree of linear association between two variables. A positive correlation between two tests is obtained when subjects above the mean on one tend to be above the mean on the second. A negative correlation is obtained when subjects above the mean on one tend to be below the mean on the second (Edwards, 1960).

TABLE 1
STATISTICAL SUMMARY - PREDICTION AND CRITERION MEASUREMENTS (N 33)
INDEPENDENT AND DEPENDENT VARIABLES, EARLY CONFINEMENT

	MEAN	STANDARD DEVIATION	VARIANCE	SUM OF SQUARES	S E OF MEASUREMENT	S E OF TEST MEAN	RELIABILITY (K-R 21)
PREDICTOR VARIABLES							
NURSE'S OBSERVATION SCALE							
1. SOCIAL COMPETENCE	45.21	4.38	19.0	6.09	1.96	.76	.79
2. SOCIAL INTEREST	29.83	5.83	34.0	1.08	2.04	1.02	.79
3. PERSONAL INTEREST	47.08	4.23	17.8	5.72	1.57	.74	.80
4. COOPERATION	40.27	6.07	36.8	1.18	2.49	1.07	.62
5. IRRITABILITY	14.84	5.89	35.9	1.15	2.78	1.05	.78
6. MANIFEST PSYCHOSIS	10.78	2.71	73.5	2.35	1.55	.48	.63
7. PARANOID DEPRESSION	13.80	4.30	18.4	5.91	2.57	.75	.64
8. TENSION	17.54	3.59	31.2	1.00	2.38	.88	.82
SELF DESCRIPTIONS I (LEARY)							
1. DOMINANCE (SUBMISSION)	45.61	6.74	45.4	1.45	2.77	1.18	.63
2. LOVE (HOSTILITY)	54.33	6.51	42.4	1.35	3.13	1.14	.77
TAT PROJECTIVE TEST							
1. TAT - EMOTIONAL TONE	47.08	4.25	18.0	5.78	2.84	.75	.55
2. TAT - OUTCOME	50.38	8.48	41.8	1.33	3.08	1.13	.77
CRITERION VARIABLES							
SELF DESCRIPTION II (CONFINEMENT ACCEPTANCE)							
1. PHYSICAL CONFINEMENT	34.42	11.81	13.9	4.48	3.19	2.07	.93
2. PSYCHOLOGICAL CONFINEMENT	32.51	12.49	15.6	4.98	3.01	2.19	.94
3. LACK OF PRIVACY	27.08	11.08	12.2	3.82	3.14	1.94	.92
4. LACK OF PHYSICAL SUPPORTS	24.75	9.42	88.8	2.84	2.72	1.65	.92
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	22.21	11.27	12.7	4.08	3.87	1.98	.88
6. LACK OF INTERPERSONAL RELATIONSHIPS	22.12	7.82	61.1	1.95	2.84	1.37	.68
7. LOSS OF IDENTITY	15.45	8.93	72.8	2.33	2.50	1.50	.91
8. FEARS	28.75	10.07	10.1	3.24	3.61	1.77	.88

TABLE 2
INTERCORRELATIONS AMONG THE EARLY CONFINEMENT VARIABLES (N=33)

NURSE'S OBSERVATION SCALE		1	2	3	4	5	6	7
1. SOCIAL COMPETENCE								
2. SOCIAL INTEREST	.28							
3. PERSONAL INTEREST	.24	.42*						
4. COOPERATION	.52**	.31	.37*					
5. IRRITABILITY	-.37*	.33	-.71**	-.58**				
6. MANIFEST PSYCHOSIS	-.25	.52**	-.72**	-.41*	.76**			
7. PARANOID DEPRESSION	-.18	.48**	-.73**	-.43*	.78**	.78**		
8. TENSION	-.18	.51**	-.58**	-.31	.81**	.86**	.68**	
SELF-DESCRIPTION I (LEARY)		1						
1. DOMINANCE (SUBMISSION)								
2. LOVE (HOSTILITY)	.74**							
TAT PROJECTIVE TEST		1						
1. C-901 TONE								
2. OUTCOME	.98**							

FOR DF 31, N = 34 FOR P .05 (*) 46 FOR P .01 (**)

TABLE 3
CORRELATIONS BETWEEN THREE PREDICTOR INSTRUMENTS-
MEASUREMENTS OF EARLY CONFINEMENT BEHAVIOR (N=33)

	NURSE'S OBSERVATION SCALE (NOSIE)							
	1	2	3	4	5	6	7	8
SOCIAL COMPETENCE								
PERSONAL INTEREST								
COOPERATION								
IRRITABILITY								
MANIFEST PSYCHOSIS								
PARANOID DEPRESSION								
TENSION								
SELF-DESCRIPTION 1 (LEARY)								
1. DOMINANCE	.01	-.42*	.83**	.30	-.48**	-.74**	-.60**	-.59**
2. LOVE	.04	-.53**	.89**	.40*	-.64**	-.78**	-.63**	-.60**
TAT								
1. EMOTIONAL TONE	.13	-.59**	.72**	.41*	-.65**	-.85**	-.71**	-.68**
2. OUTCOME	.18	-.53**	.87*	.42*	-.80**	-.82**	-.61**	-.85**

FOR DF = 31, R = .34 FOR P < .05 (*) .44 FOR P < .01 (**)

TABLE 4
CORRELATIONS BETWEEN TWO PREDICTOR INSTRUMENTS:
MEASUREMENTS OF EARLY CONFINEMENT BEHAVIOR (N=33)

	TAT	
	1	2
EMOTIONAL TONE		
OUTCOME		
SELF DESCRIPTIONS 1 (LEARY)		
1. DOMINANCE (SUBMISSION)	.78**	.83**
2. LOVE (HOSTILITY)	.74**	.82**

FOR DF = 31, R = .34 FOR P < .05 (*) AND .44 FOR P < .01 (**)

Table 2 presents the intercorrelations among the three early confinement measurements of behavior: the NOSIE, Self-Description Scale I (Leary) and two types of scoring of the TAT.

The correlations presented in Table 2 indicate that a high relationship exists between many of the subscales on the NOSIE. Of the six reported for the first four scales (1, 2, 3 and 4, measuring Social Competence, Social Interest, Personal Interest and Cooperation), three show relationships that are significant; namely, .52, -.42 and .37, with the remaining showing three moderate but not significant relationships. It is interesting to note that variable two, Social Interest, has a statistically significant relationship with variable three, Personal Interest, but this relationship is negative (-.42). Thus, high social interest accompanies low personal interest (or low social interest accompanies high personal interest).

The last four scales (5, 6, 7 and 8, measuring Irritability, Manifest Psychosis, Paranoid Depression and Tension) are significantly interrelated, showing positive correlations of .79, .79, .81, .86 and .68. It is interesting to note that these four scales are also significantly related to the second scale, namely, Social Interest. These four scales show negative relationships with the scale measuring Social Competence, Personal Interest and Cooperation with r 's of -.37, -.25, -.18 and -.19; -.71, -.72, -.73, and -.58; and -.58, -.41, -.43 and -.31, respectively.

The two scales of Dominance and Love, of the Self-Description I (Leary) are significantly intercorrelated with an r of .74. In the same way, but more so, the two methods of scoring the TAT (measuring the emotional tone of the pictures as well as the outcomes of the stories) are related with a computed r of .96.

In summary, Table 2 tells us that of the eight separate measurements of NOSIE, subjects with high scores on three scales (Social Competence, Personal Interest and Cooperation) tended to get low scores on the five remaining scales (Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension). Also, individuals scoring high on the Dominance Scale of the Self-Description I (Leary) tended to score high on the Love scale of that same instrument. Individuals scoring high on the Emotional Tone scale of the TAT also tended to get high, in fact, almost identical scores on the Outcome scale.

Correlations Between Three Predictor Instruments: Measurements of Early Confinement Behavior.

The purpose of Tables 3 and 4 is to determine the relationship between the three instruments used to measure behavior and, in this study, served as predictors to attempt to assess a patient's behavior during early confinement.

The correlations presented in Table 3 indicate that the NOSIE scale 1, Social Competence is not related to either the Self-Description I or the TAT scales, with r 's of .01, .04, .13 and .18 reported, respectively. On the other hand, two NOSIE scales, Personal Interest and Cooperation, showed positive relationships, most of them significant, with both the SD-I and TAT scales, having values of .63, .69, .72, .67, .30, .40, .41, and .42, respectively. The remaining scales of the NOSIE (Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension) all showed negative relationships with the SD-I and TAT scales, the ten values ranging from a low of .42 to a high of .85.

Table 4 indicates that the SD-I and the TAT scales are highly related with r 's of .78, .74, .83 and .82 reported.

In summary, it appeared that the NOSIE scale 1, Social Competence was only slightly related to any scale of the SD-I or the TAT and that the NOSIE's Personal Interest and Cooperation scales and the SD-I and TAT are highly related in a positive manner while the NOSIE's Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension scales are highly related but in a negative fashion with SD-I and TAT scales.

Intercorrelations Among the Dependent Variables (Criteria): Measurement of Confinement Acceptance During Early Confinement.

Table 5 presents the same information for the dependent variables or criteria as Tables 2, 3 and 4 did for the independent variables or predictors. Only one instrument, namely, the Self-Description II or Confinement Acceptance Scale developed for this study, served as a measurement of a patient's feelings toward confinement. It attempted to measure the psychological environment of confinement.

It will be noted in Table 5 that significant relationships exist on the Confinement Acceptance Scale between the scales measuring Physical Confinement,

Psychological Confinement, Lack of Privacy, Lack of Physical Supports and Fears. Of a total of 28 correlations, five are significantly related at the 0.5 level and eleven are related at the .01 level of significance. One scale, Fear, shows a significant relationship to each other scale (see bottom row of r's). Three scales, namely, Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships and Loss of Identity are slightly or negligibly related to the other scales, with the exception of Fear, although they correlate highly with each other (.47, .35 and .83, respectively).

Problem 1

Restatement of the Problem

Problem 1. To discover significant relationships between behavior and the psychological environment of early confinement.

To answer this problem two procedures were followed: (a) the development and use of instruments to measure behavior of early confinement and (b) the development and use of an instrument to measure the psychological environment of early confinement.

To discover these relationships, the following hypothesis is presented:

H₁: There is a significant relationship between human behavior as evidenced in twelve factors:

1. Social Competence
2. Social Interest
3. Personal Interest
4. Cooperation
5. Irritability
6. Manifest Psychosis
7. Paranoid Depression
8. Tension
9. Dominance (Submission)
10. Love (Hostility)
11. Emotional Tone
12. Outcome

and the acceptance of the psychological environment of early confinement as evidenced in eight factors:

1. Physical Confinement
2. Psychological Confinement
3. Lack of Privacy
4. Lack of Physical Supports
5. Lack of Familiar Behavior Patterns
6. Lack of Familiar Interpersonal Relationships
7. Loss of Identity
8. Fears

Table 6, page 66 presents all of the relationships possible between the twelve measurements of behavior and the eight measurements of the psychological environment.

In Table 6 are presented data regarding the extent to which measurements of behavior correlate with the measurements of the psychological environment. For this study, the former were set up to attempt to predict the psychological environment of confinement, the criteria. It will be noted that five behavioral measures (Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension) are highly related to four measurements of Acceptance of Confinement (Physical Confinement, Psychological Confinement, Lack of Privacy and Lack of Familiar Physical Supports), the measurement of psychological environment, in a negative fashion. Of the twenty coefficients reported for these variables, thirteen are significant. These same five behavioral measures are highly related, but in positive fashion, with the other four measurements of acceptance of confinement (Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity and Fears). Of the twenty possible coefficients reported, twelve are statistically significant.

Three behavioral measurements (Social Competence, Personal Interest and Cooperation) correlate in either a negative or slightly positive fashion with acceptance of confinement as evidenced in Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity and Fears. Of the twelve coefficients possible, ten are negative, and four are statistically significant. Thus, as scores in one set of measurement go up, scores in the other go down, and vice versa.

TABLE 5 INTERCORRELATIONS AMONG THE DEPENDENT VARIABLES (CRITERIA): MEASUREMENT OF CONFINEMENT ACCEPTANCE OF EARLY CONFINEMENT (N=33)							
CONFINEMENT ACCEPTANCE SCALE (SELF- DESCRIPTIVE-1)	PHYSICAL CONFINEMENT 1	PSYCHOLOGICAL CONFINEMENT 2	LACK OF PRIVACY 3	LACK OF PHYSICAL SUPPORTS 4	LACK OF FAMIL- IAR BEHAVIOR PATTERNS 5	LACK OF INTER- PERSONAL RELA- TIONSHIPS 6	FEARS 8
1. PHYSICAL CONFINEMENT	.93**						
2. PSYCHOLOGICAL CONFINEMENT	.67**	.62**					
3. LACK OF PRIVACY	.77**	.73**	.54**				
4. LACK OF PHYSICAL SUPP.	.08	.05	-.11	-.01			
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	.14	.20	.07	.20	.47**		
6. LACK OF INTERPERSONAL RELATIONSHIPS	.06	.12	.03	.22	.35*	.83**	
7. LOSS OF IDENTITY	.11*	.37*	.35*	.43*	.44**	.65**	
8. FEARS							.06**
FOR DF 31, R 34 FOR P .05 (*) AND .44 FOR P .01 (**).							

TABLE 6 CORRELATIONS BETWEEN PREDICTORS AND CRITERIA FOR EARLY CONFINEMENT (N=33)							
PREDICTORS: MEASUREMENT OF BEHAVIOR	PHYSICAL CONFINEMENT 1	PSYCHOLOGICAL CONFINEMENT 2	LACK OF PRIVACY 3	LACK OF PHYSICAL SUPPORTS 4	LACK OF FAMIL- IAR BEHAVIOR PATTERNS 5	LACK OF INTER- PERSONAL RELA- TIONSHIPS 6	FEARS 8
MURRES' OBSERVATION SCALE							
1. SOCIAL COMPETENCE	.01	-.01	.24	.13	-.38*	-.21	.09
2. SOCIAL INTEREST	-.37*	-.41*	-.25	-.00	-.09	.37*	.37*
3. PERSONAL INTEREST	.20	.17	.20	.20	-.31	-.63**	-.48**
4. COOPERATION	.21	.11	.28	.43*	.33	-.21	.09
5. IRRITABILITY	-.31	-.38	-.20	-.38*	.32	.41	.31
6. MANIFEST PSYCHOSIS	-.47**	-.48**	-.36*	-.41*	.43*	.58**	.47*
7. PSYCHOTIC DEPRESSION	-.39*	-.41*	-.23	-.30	.22	.46**	.28
8. TENSION	-.48**	-.52**	-.24	-.44**	.25	.38*	.79
SELF-DESCRIPTIVE I (LEARY)							
1. DOMINANCE (SUBMISSION)	.43*	.34*	.25	.42*	-.28	-.60**	-.31
2. LOVE (HOSTILITY)	.38*	.30	.35*	.36*	-.40*	-.58**	-.43*
TAT PROJECTIVE TEST							
1. TAT EM. TONE	.48**	.44**	.46**	.39*	-.41*	-.81**	-.37*
2. TAT OUTCOME	.45**	.41*	.54**	.40*	-.37*	-.58**	-.32
FOR DF 31, R 34 FOR P .05 (*) AND .44 FOR P .01 (**).							

Scores from the Self-Description I (Leary) and the TAT projective test behave in almost the same manner with all of the correlations from the TAT being statistically significant. Both scales show high relationships in a positive direction with the first four confinement acceptance scales but in a negative direction with the remaining four. Of the thirty-two coefficients reported, all are high with twenty-seven of them showing statistical significance.

In summary, our data show that high Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension will accompany poor acceptance of confinement near the beginning of a period of confinement but that those scoring high in these same five measurements will tend to score high also in the acceptance of Lack of Familiar Behavior Patterns, Interpersonal Relationships, Loss of Identity and Fears. In the Self-Description I, Dominance and Love behaved positively as do these five whereas Submissiveness and Hostility behaved negatively.

Principal Components Analysis: Early Confinement

The complete 20 x 20 correlation matrix which included all the variables of the study was factor analyzed by the principal components analysis. From an examination of the unrotated factor matrix, it appeared that the first six appeared to be common factors, while the remaining contained mostly specific and error variance. These six will be found in Table 7, page 67. It can be noted that the variance drops to below 1.00 with Factor V and that one of the loadings is .55 with none in Factor IV (not included in the table) going above .40 and hence not included in the table. It is noteworthy that the first factor extracted was many times larger than any of the five succeeding factors (9.24, 3.78, 2.13, 1.05, .82 and .70), indicating the presence of an extremely strong "G" factor or the presence of a large general factor. Factors II and III as well as IV appeared as entities also. The negative signs for the loading on some factors indicated a different kind of factor but not necessarily in the opposite direction.

Rotation of Factors: Early Confinement

All of the factors extracted were rotated, not only those making the most contribution. The varimax method, an orthogonal rotation, was used. In addition to including loadings that were meaningful for interpretative purposes, the loadings of the factors beyond those printed in Table 7, page 67, were

included for the interest of the reader and appear in Table 8, page 70.

Although some of the loadings for factors beyond Factor VI were high, they are not significant because the particular factor makes little contribution to the total.

Correlation of Factors—Early Confinement

Table 9, page 71, presents the correlation matrix of all fourteen factors. It will be noted that the Factor I, the large general factor in the variables, correlated negatively with Factor II ($-.40$), almost negligibly with Factor III ($.16$), very negatively with Factor IV ($-.80$) and almost not at all with Factor V ($.03$). Thus, none of the first five factors are associated with each other in a positive manner.

The preceding has been a discussion of the variables making up the measurements of behavior as well as the variables making up the measurements of the psychological environment relating to one's perception of it at the very beginning of confinement (twenty-four hours or less from the onset). In this section the discussion will concern the same variables but will focus upon the measurements taken after three or four days of confinement.

As indicated earlier, the goal was to identify behaviors and aspects of confinement that tend to accompany one another, singly or in clusters. Finally, Problem 1 attempted to identify the independent variables that correlated with the dependent variables for early confinement, while Problem 2, in this section, attempted to identify these for a period later in confinement.

Statistical Summary of Scores Taken After a Period of Confinement.

Table 6 presents a statistical summary of the measurements given to the patients three to four days after their arrival at the hospital and after the time the early confinement measurements were made. In the table are found the tests' means, standard deviations, variances, sums of squares, standard errors of measurement, standard errors of test means, and reliabilities.

All of the reliabilities reported are acceptable for the Confinement Acceptance Scale. The lowest reliability is .88 for Lack of Familiar Behavior Patterns while the highest is .96 for Physical Confinement.

The reliabilities for the remaining measurements are generally good. Three are low, probably due to the few number of items measuring them.

TABLE 7
PRINCIPAL COMPONENTS ANALYSIS FOR EARLY CONFINEMENT

VARIABLE	FACTOR I		FACTOR II		FACTOR III		FACTOR IV		FACTOR V		FACTOR VI	
	LOADING	VARIANCE	LOADING	VARIANCE	LOADING	VARIANCE	LOADING	VARIANCE	LOADING	VARIANCE	LOADING	VARIANCE
1. SOCIAL COMPETENCE	.24	8.24	.00	3.78	.77	2.13	-.05	1.05	.50	.82	-.00	.70
2. SOCIAL INTEREST	-.56		-.00		.74		.03		-.27		-.02	
3. PERSONAL INTEREST	.81		.25		.05		-.14		.04		-.22	
4. COOPERATION	.47		-.17		.74		-.06		-.22		-.22	
5. IRRITABILITY	-.81		.01		-.24		.45		-.02		-.10	
6. MANIFEST PSYCHOSIS	-.85		-.00		-.01		.07		-.00		-.16	
7. PARANOID DEPRESSION	-.82		-.01		.00		.36		-.04		.12	
8. TENSION	-.83		.09		.06		.33		-.00		-.25	
9. DOMINANCE (SUBMISSION)	.80		-.02		-.13		.16		-.33		-.18	
10. LOVE (HOSTILITY)	.87		-.09		-.08		.14		-.21		-.03	
11. TAT EM. TONE	.84		-.00		-.06		.20		-.03		-.09	
12. TAT OUTCOME	.90		-.04		-.03		.29		-.01		-.09	
13. PHYSICAL CONFINEMENT	.51		-.78		-.20		.05		.09		.03	
14. PSYCHOLOGICAL CONFINEMENT	.48		-.78		-.23		-.07		.10		.22	
15. LACK OF PRIVACY	.43		-.88		.08		.46		.35		-.07	
16. LACK OF PHYSICAL SUPPORTS	.44		-.78		.15		-.01		-.27		.00	
17. LACK OF FAMILIAR BEHAVIOR PATTERNS	-.42		-.33		-.45		-.36		.08		-.55	
18. LACK OF INTERPERSONAL RELATIONSHIPS	-.64		-.63		-.02		-.20		-.06		.16	
19. LOSS OF IDENTITY	-.64		-.60		.09		-.00		-.26		.12	
20. FEARS	-.39		-.81		.17		.01		.11		-.23	

TABLE 8
THE ROTATED FACTOR MATRIX INCLUDING FOURTEEN COMMON FACTORS: EARLY CONFINEMENT*

VARIABLES	FACTORS													
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
1. SOCIAL COMPETENCE					.94									
2. SOCIAL INTEREST	-.46													
3. PERSONAL INTEREST									.71					
4. COOPERATION			.87											
5. IRRITABILITY				.75										
6. MANIFEST PSYCHOSIS	-.40			.60										
7. PARANOID DEPRESSION				.48				-.69						
8. TENSION				.85										
9. DOMINANCE	.41										.72			
10. LOVE	.49											.51		
11. TAT EM. TONE	.73													
12. TAT OUTCOME	.79													
13. PHYSICAL CONFINEMENT		.95												
14. PSYCHOLOGICAL CONFINEMENT		.81												
15. LACK OF PRIVACY		-.56					.75							
16. LACK OF PHYSICAL SUPPORTS		-.74												-.46
17. LACK OF FAMILIAR BEHAVIOR PATTERNS						-.94								
18. LACK OF INTERPERSONAL RELATIONSHIPS														
19. LOSS OF IDENTITY										.86				
20. FEARS		-.50												-.48

*LOADINGS WITH AN ABSOLUTE VALUE UNDER .40 ARE OMITTED.

TABLE 9
CORRELATION MATRIX OF FOURTEEN FACTORS: EARLY CONFINEMENT

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
II	.40												
III	.16	-.02											
IV	-.80	.58	-.37										
V	.01	.03	.52	-.24									
VI	.50	-.05	.43	-.39	.37								
VII	.44	-.45	.05	-.30	.19	.24							
VIII	.66	-.49	.33	-.72	.17	.22	.28						
IX	.67	-.16	.25	-.72	.17	.30	.18	.69					
X	-.81	.11	-.15	.63	-.19	-.46	.25	-.55	-.73				
XI	.71	-.28	.21	-.84	-.03	.44	.08	.51	.57	-.71			
XII	.62	-.22	.08	-.58	-.14	.31	.23	.40	.46	-.57	.46		
XIII	.53	.00	-.01	-.44	-.05	.39	.06	.26	.49	-.48	.41	.37	
XIV	-.01	.20	-.38	.19	-.10	-.17	.07	-.01	-.08	-.08	-.25	-.06	.05

Intercorrelations Among Three Predictor Instruments: Measurements of Behavior Later in Confinement.

Tables 7, 8 and 9 show the relationships that exist between the instruments that measured behavior following a period of confinement and those that measured feelings of acceptance toward confinement. The data described in Table 6 are similar (see pages 58 and 62 for discussion) to those in Table 2 (confinement) with the following exceptions.

The relationship of Social Competence with Social Interest increased from an r of .29 (early testing) to an r of .64 (later testing); Social Competence and Cooperation lessened in relationship from an r of .52 (early) to .33 (later); Social Interest and Personal Interest were no longer significantly related in a negative direction after a period of confinement with the r of -.42 (early) going to -.05 (later); Tension following a period of confinement was almost significantly related to Social Competence ($r = .33$ instead of the required .34) while in early confinement this relationship was slightly negative ($r = -.19$). The other correlations followed the pattern discussed on pages 58 and 62, changing a little but not significantly.

Correlations Between Three Predictor Instruments: Measurements of Behavior Later in Confinement.

The data presented in Table 8 follow the pattern presented in Table 3, page 61 with the following differences.

The NOSIE measurement values changed from early to later confinement when correlated with the Self-Description Scale I (Leary) and the TAT's. The relationships became slightly negative (early = .01, .04, .13 and .18 while later = .07, -.26, -.17 and .15, respectively). In addition, the significantly higher negative correlation of -.42 of the early confinement scores in NOSIE's Social Interest and the Dominance scale of the Self-Description I (Leary) changed to a significant positive correlation of .39 for later confinement.

In general, the values of the other coefficients of correlation changed a little but not enough to alter the statistically significant relationships discussed in connection with Table 3, page 61.

Table 9 presents values nearly identical to values in Table 4, page 61. The tests were significantly related in both instances.

Intercorrelations Among the Dependent Variables (Criterion Instrument):
Measurements of Confinement Acceptance Following a Period of Confinement.

Table 10 presents the same information for later confinement that Table 5, page 66, did for early confinement acceptance of the psychological environment of confinement.

The data in Table 10 follow the same general pattern of the data in Table 5 with the notable exception that the variable representing an acceptance of Fear increased considerably in its relationship to each other variable. The early confinement r 's between Fear and the seven other variables of the Confinement Acceptance Scale (the Self-Descriptions II) were as follows for the preconfinement measurements: .41, .37, .35, .43, .44, .65 and .66 (see Table 5, page 66) but for the later confinement measurements were: .58, .55, .56, .66, .76, .75 and .70, respectively.

In the later confinement measurement of the acceptance of confinement, Lack of Familiar Behavior Patterns became significantly related to Lack of Privacy (early $r = -.11$; later $r = .36$) and to Lack of Physical Supports (early $r = -.01$; later $r = .38$). The relationships for acceptance of Lack of Familiar Behavior Patterns also changed from early confinement to later confinement for the variables Lack of Interpersonal Relationships (early = .47; later = .90), Loss of Identity (early = .35; later = .93) and Fears (early = .44, later = .6). High, but not significantly so, were the relationships among Physical and Psychological Confinement for acceptance after a period of confinement (later = .28 and .26, respectively while early = .08 and .05, respectively). The data in Table 10 also show that Loss of Identity became significantly related to the Lack of Physical Supports (later = .39; early = .22).

In summary, it would appear that the acceptance of Lack of Familiar Behavior Patterns and Fears have become more significantly related to the other variables measured by the Confinement Acceptance Scale which served as criteria of the psychological environment of confinement.

TABLE 10
STATISTICAL SUMMARY: PREDICTION AND CRITERION MEASUREMENTS (N=33)
INDEPENDENT AND DEPENDENT VARIABLES, LATER CONFINEMENT

	MEAN	STANDARD DEVIATION	VARIANCE	SUM OF SQUARES	S.E. OF MEASUREMENT	S.E. OF TEST MEAN	RELIABILITY (R-R 21)
PREDICTOR VARIABLES							
NURSE'S OBSERVATION SCALE							
1. SOCIAL COMPETENCE	46.33	3.42	11.7	3.75	1.80	.80	.72
2. SOCIAL INTEREST	30.60	5.10	26.0	8.33	2.17	.89	.82
3. PERSONAL INTEREST	45.45	8.52	74.3	2.37	1.86	1.51	.86
4. COOPERATION	42.12	5.41	29.3	9.39	2.33	.95	.81
5. IRRITABILITY	19.93	2.95	87.4	2.78	2.31	.52	.39
6. MANIFEST PSYCHOSIS	11.21	3.07	94.2	3.01	2.45	.54	.36
7. PARANOID DEPRESSION	12.68	3.23	10.4	3.35	2.45	.57	.42
8. TENSION	18.21	3.41	11.6	3.73	2.02	.60	.65
SELF-DESCRIPTIONS I (LEARY)							
1. DOMINANCE (SUBMISSION)	48.09	7.08	50.1	1.60	2.86	1.24	.84
2. LOVE (HOSTILITY)	57.33	8.16	66.6	2.13	2.89	1.43	.87
TAT-PROJECTIVE TEST							
1. TAT-EMOTIONAL TONE	47.93	3.57	12.8	4.09	2.71	.83	.42
2. TAT-OUTCOME	51.09	5.74	33.0	1.05	2.95	1.01	.74
CRITERION VARIABLES							
SELF-DESCRIPTION II (CONFINEMENT ACCEPTANCE)							
1. PHYSICAL CONFINEMENT	38.42	15.40	23.7	7.59	3.19	2.70	.86
2. PSYCHOLOGICAL CONFINEMENT	35.15	12.78	16.3	5.22	2.89	2.24	.94
3. LACK OF PRIVACY	30.12	12.47	15.8	4.88	3.02	2.19	.94
4. LACK OF PHYSICAL SUPPORTS	29.21	11.43	13.0	4.18	3.12	2.01	.92
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	21.54	8.49	72.1	2.31	2.61	1.49	.90
6. LACK OF INTERPERSONAL RELATIONSHIPS	25.00	8.85	78.4	2.51	3.10	1.55	.88
7. LOSS OF IDENTITY	17.93	10.39	10.6	3.45	2.66	1.82	.83
8. FEARS	34.33	11.65	13.5	4.34	2.77	2.04	.84

FOR DF = 31, R = .34 FOR P < .05 (*) AND .44 FOR P < .01(**).

TABLE 12 CORRELATIONS BETWEEN THREE PREDICTOR INSTRUMENTS: MEASUREMENTS OF LATER CONFINEMENT BEHAVIOR (N = 33)

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TABLE 13 CORRELATIONS BETWEEN TWO PREDICTOR INSTRUMENTS: MEASUREMENTS OF LATER CONFINEMENT BEHAVIOR

	TAT	
	1. EMOTIONAL TONE	2. OUTCOME
SELF-DESCRIPTIONS I (LEARY)		
1. EMOTIONAL TONE	.75**	.85**
2. OUTCOME	.69**	.85**
FOR DF = 31, R = .34 FOR P < .05(*) AND .44 FOR P < .01(**)		

TABLE 14 INTERCORRELATIONS AMONG THE LATER CONFINEMENT DEPENDENT VARIABLES (CRITERIA) (N 33)

CONFINEMENT ACCEPTANCE SCALE (SELF-DESCRIPTIONS-II)	1. PHYSICAL CONFINEMENT	2. PSYCHOLOGI- CAL CONFINEMENT	3. LACK OF PRIVACY	4. LACK OF PHYSICAL SUPPORTS	5. LACK OF FAMILIAR BEHAVIOR PATTERNS	6. LACK OF INTERPERSONAL RELATIONSHIPS	7. LOSS OF IDENTITY
1. PHYSICAL CONFINEMENT							
2. PSYCHOLOGICAL CONFINEMENT	.91**						
3. LACK OF PRIVACY	.82**	.71**					
4. LACK OF PHYSICAL SUPPORTS	.88**	.86**	.72**				
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	.28	.26	.36*	.38*			
6. LACK OF INTERP. RELATIONS	.17	.17	.20	.26	.90**		
7. LOSS OF IDENTITY	.27	.22	.30*	.39*	.93**	.86**	
8. FEARS	.50**	.55**	.56**	.66**	.70**	.75**	.70**

FOR DF = 31, R = .34 FOR P < .05(*), AND .44(**).

Problem 2

Restatement of the Problem.

Problem 2. To discover significant relationships between behavior and the psychological environment following a period of confinement.

To answer this problem, two procedures were followed: (a) the use of the instruments (developed and used to measure behavior in Problem 1) after a period of confinement and (b) the use of the instrument (developed and used to measure the psychological environment in Problem 1) after a period of confinement.

To discover these relationships, the following hypothesis is presented.

H₂: there is a significant relationship between human behavior as evidenced in twelve factors (see Problem 1) and the psychological environment which follows a period of confinement as evidenced in eight factors (see Problem 1).

Data analyses for Problem 2 followed the same pattern as that followed by Problem 1. Problem 1 concerned the variables for early confinement while Problem 2 concerned the variables for later confinement. In many instances the same relationships existed for the early and later confinement variables. Therefore, while this will be pointed out, discussion shall focus primarily upon the relationships that differ.

Table 15 presents data from a correlational analysis that served to show relationships that might exist between the independent variables set up in this study as predictors of the criteria of acceptance of confinement. the dependent variables.

With some slight variation, the pattern presented in Table 15 followed the data from the early confinement testing (see Table 6, page 66 and discussion page 65).

Several differences in relationships between the predictors and criteria existed in the measurements taken following a period of confinement that did not exist in the measurements taken at the beginning of confinement. One of them was the variable Personal Interest which changed from high negative relationships to low ones, with one being nearly significantly positive. (Early = -.31, -.63, -.65, -.48; later = .05, -.04, .03 and .33) when correlated with

TABLE 15 CORRELATIONS BETWEEN PREDICTORS AND CRITERIA FOR LATER CONFINEMENT (N=33)

CRITERIA: MEASUREMENTS OF PSYCHOLOGICAL ENVIRONMENT: SELF DESCRIPTIONS II (CONFINEMENT ACCEPTANCE SCALE)								
PREDICTORS: MEASUREMENTS OF BEHAVIOR	1. PHYSICAL CONFINEMENT	2. PSYCHOLOGICAL CONFINEMENT	3. LACK OF PRIVACY	4. LACK OF PHYSICAL SUPPORTS	5. LACK OF FAMILY BEHAVIOR PATTERNS	6. LACK OF INTERPERSONAL RELATIONSHIPS	7. LOSS OF IDENTITY	8. FEARS
NURSES' OBSERVATION SCALE								
1. SOCIAL COMPETENCE	.10	-.04	.21	.02	.23	.28	.34*	.15
2. SOCIAL INTEREST	-.23	-.31	.04	-.23	.43*	.48**	.41*	.25
3. PERSONAL INTEREST	.58**	.51**	.51**	.55**	.05	-.04	.03	.33
4. COOPERATION	.35*	.27	.28	.22	-.11	-.25	-.15	-.06
5. IRRITABILITY	-.40*	-.41*	-.21	-.33	.58**	.68**	.56**	.32
6. MANIFEST PSYCHOSIS	-.42*	-.41*	-.25	-.31	.58**	.69**	.48**	.31
7. PARANOID DEPRESSION	-.42*	-.42*	-.24	-.30	.59**	.80**	.55**	.30
8. TENSION	-.44**	-.52**	-.23	-.38*	.49**	.80**	.52**	.22
SELF-DESCRIPTION I (LEADY)								
1. DOMINANCE (SUBMISSION)	.32	.30	.21	.17	-.81**	-.57**	-.49**	-.22
2. LOVE (HOSTILITY)	.52**	.48**	.31	.46*	-.39*	-.51**	-.35*	-.15
TAT PROJECTIVE TESTS								
1. TAT EM TIME	.50**	.49**	.31	.38*	-.60**	-.67**	-.52**	-.27
2. TAT OUTCOME	.53**	.51**	.37*	.42*	-.50**	-.80**	-.42*	-.19

FOR DF = 31, $r = .34$ FOR $P < .05(*)$ AND $.44$ FOR $P < .01(**)$

acceptance of Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity, and Fears. The high positive correlation of Personal Interest in the early tests (.20, .17, .20 and .20) increased to significance for the later tests (.58, .51, .51 and .55) when correlated with Acceptance of Physical Confinement, Psychological Confinement, Lack of Privacy, and Lack of Physical Supports. The correlation coefficients for the Self-Description Scale II (Leary) and the TAT retained about the same correlations for the later confinement measurements as for the early confinement measurements.

Principal Components Analysis: Later Confinement.

A factor analysis was made of the correlation matrix which included all of the variables for the later confinement measurements. The unrotated factor matrix is presented in Table 16, page 80, listing only the six major factors. Of these, it will be noted that the variance dropped to below 1.00 with Factor IV, rather than after Factor IV. The first factor extracted, as with the early test measurements, was larger than the second factor but in the case of the later test measurements, the first factor was a slightly larger general factor than in the early test measurements, having variances of 9.24 and 9.42, respectively, for early and later tests. The second factor from the later confinement tests had a larger variance than Factor II of the early confinement tests, having a value of 5.22 compared to 3.78 for the early confinement measurements. The variance dropped to .77 for Factor IV in the later confinement measurements while Factor VI in the early confinement measurements had a variance of .70. Thus, it would seem that the factors extracted differently from early to later confinement measurements.

Rotation of Factors: Later Confinement

All of the factors produced by the factor analysis were rotated and those with high loadings are presented in Table 17, page 81. Again, it is pointed out that those loadings for factors beyond Factor VI are not important because the factor they represent makes little contribution.

Correlation of Factors: Later Confinement

Table 18, page 82, presents the correlation matrix of all fourteen factors. Factor I showed a slight correlation with Factor II (.31) in a positive direction

TABLE 16
PRINCIPAL COMPONENTS ANALYSIS: LATER CONFINEMENT

VARIABLE	FACTOR I		FACTOR II		FACTOR III		FACTOR IV		FACTOR V		FACTOR VI	
	LOAD- ING	VAR- IANCE	LOAD- ING	VAR- IANCE	LOAD- ING	VAR- IANCE	LOAD- ING	VAR- IANCE	LOAD- ING	VAR- IANCE	LOAD- ING	VAR- IANCE
1. SOCIAL COMPETENCE	.17	9.42	-.28	5.22	-.87	1.85	-.10	.77	-.25	.55	.07	.41
2. SOCIAL INTEREST	.64		-.15		-.86		-.05		.14		-.07	
3. PERSONAL INTEREST	-.47		-.50		-.19		-.42		.83		.08	
4. COOPERATION	-.43		-.17		-.56		.63		.18		-.05	
5. IRRITABILITY	.93		-.05		.13		-.12		-.03		.12	
6. MANIFEST PSYCHOSIS	.92		-.02		.23		.14		.01		-.01	
7. PARANOID DEPRESSION	.94		-.04		.17		.11		.05		.10	
8. TENSION	.81		-.01		-.20		-.10		-.01		.18	
9. DOMINANCE (SUBMISSIVE)	-.79		.08		-.21		-.28		-.30		-.15	
10. LOVE (HOSTILITY)	-.86		-.10		.18		.12		-.00		.27	
11. TAT EM. TONE	-.87		-.00		.02		.02		-.04		.10	
12. TAT OUTCOME	-.83		-.09		.03		-.00		-.01		.23	
13. PHYSICAL CONFINEMENT	-.50		-.82		.04		.05		-.08		-.02	
14. PSYCHOLOGICAL CONFINEMENT	-.50		-.77		.18		.06		-.08		-.18	
15. LACK OF PRIVACY	-.31		-.79		-.07		-.03		-.12		.20	
16. LACK OF PHYSICAL SUPPORTS	-.38		-.84		.18		.03		-.04		-.08	
17. LACK OF FAMILIAR BEHAVIOR PATTERNS	.60		-.73		.06		.13		.02		.07	
18. LACK OF INTERPERSONAL RELATIONSHIPS	.70		-.64		.08		-.01		-.08		-.08	
19. LOSS OF IDENTITY	.56		-.72		-.00		.02		-.15		.22	
20. FEARS	.27		-.87		.12		-.10		.05		-.21	

TABLE 17
THE ROTATED FACTOR MATRIX INCLUDING FOURTEEN COMMON FACTORS: LATER CONFINEMENT*

VARIABLES	FACTORS													
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
1. SOCIAL COMPETENCE	.53		-.98											
2. SOCIAL INTEREST			-.58								-.58			
3. PERSONAL INTEREST		-.41		.92	.85									
4. COOPERATION	.88													
5. IRRITABILITY	.94													
6. MANIFEST PSYCHOSIS	.96													
7. PARANOID DEPRESSION	.83													
8. TENSION	-.78													
9. DOMINANCE	-.72													
10. LOVE	-.90													
11. TAT EM. TONE	-.84													
12. TAT OUTCOME														
13. PHYSICAL CONFINEMENT		-.90												
14. PSYCHOLOGICAL CONFINEMENT		-.90												
15. LACK OF PRIVACY		-.77				.58								
16. LACK OF PHYSICAL SUPPORTS		-.81												
17. LACK OF FAMILIAR BEHAV. PATTERNS	.67	-.50					.47							
18. LACK OF INTERPERSONAL RELATIONSHIPS	.75	-.44												
19. LOSS OF IDENTITY	.58	-.47					.58							
20. FEARS	.42	-.79												

*LOADINGS WITH AN ABSOLUTE VALUE UNDER .40 ARE OMITTED.

TABLE 18 CORRELATION MATRIX OF FOURTEEN FACTORS: LATER CONFINEMENT

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
II	.31												
III	-.30	-.27											
IV	-.48	-.08	-.11										
V	-.42	-.35	.02	.12									
VI	-.25	-.21	.01	.11	.13								
VII	.52	-.22	-.16	-.20	-.15	-.15							
VIII	.42	-.10	-.02	.04	-.04	-.02	.43						
IX	.37	-.23	-.40	.01	.09	-.07	.40	-.05					
X	-.13	-.34	.19	.13	.05	-.07	.08	-.05	.22				
XI	-.45	-.35	.54	.01	.02	.12	-.04	-.12	-.32	.16			
XII	.01	.06	.02	-.01	.04	.00	.03	.05	-.06	-.36	-.00		
XIII	-.56	-.10	.54	.17	.10	.15	-.17	-.10	-.29	.16	.58	-.03	
XIV	.33	-.07	-.03	-.21	.00	-.16	.14	-.10	.27	.13	-.12	.11	-.15

while Factor I and Factors III, IV and V correlated almost the same but in a negative direction, being $-.30$, $-.48$ and $-.42$, respectively. Thus, it appears that the first five factors extracted were somewhat related to each other whether in a positive or negative direction.

This brings to an end all of the statistical analysis and discussion concerning the relationship of behaviors to one another, the relationships of feelings toward confinement, and the relationship of behaviors and feelings toward confinement. Also included was an attempt to extract several factors basic to the variables and the analysis of these extractions. In summary, it is pointed out that many relationships were found and were discussed in detail in the preceding section.

The next two problems were concerned with changes in behavior and perception of confinement rather than attempts to learn more about the configuration of behavior in either early or later confinement.

Problem 3

Restatement of the Problem

Problem 3. To discover a significant difference in behavior early in confinement and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of behavior early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H_3 : Behavior early in confinement is no different from behavior following a period of confinement.

H_4 : The distribution of scores representing changes in behavior from early confinement to later confinement will be uniform.

Table 19, page 84, presents the means of the scores for both early and later confinement along with t values testing the significance of the differences in scores. It will be noted that two of the twelve differences were statistically significant, namely, Dominance and Love measurements. Several others were high but not high enough for statistical significance.

TABLE 19 DIFFERENCES BETWEEN MEANS OF EARLY AND LATER
CONFINEMENT TEST SCORES (MATCHED GROUPS N 33)

VARIABLE	t VALUE
NURSES' OBSERVATION SCALE	
1. SOCIAL COMPETENCE	1.23
2. SOCIAL INTEREST	.92
3. PERSONAL INTEREST	1.06
4. COOPERATION	1.48
5. IRRITABILITY	.98
6. MANIFEST PSYCHOSIS	.51
7. PARANOID DEPRESSION	1.54
8. TENSION	.82
SELF-DESCRIPTION I	
1. DOMINANCE	3.02**
2. LOVE	2.65**
TAT PROJECTIVE TEST	
1. TAT EM. TONE	1.48
2. TAT OUTCOME	.83
PSYCHOLOGICAL ENVIRONMENT	
1. PHYSICAL CONFINEMENT	2.41*
2. PSYCHOLOGICAL CONFINEMENT	2.09*
3. LACK OF PRIVACY	1.91*
4. LACK OF PHYSICAL SUPPORTS	2.46**
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	.34
6. LACK OF INTERPERSONAL RELATIONS	2.59**
7. LOSS OF IDENTITY	1.52*
8. FEARS	4.18**

FOR OF = 32, t = 1.69 AT THE .05 LEVEL (*) AND 2.45 AT THE .01 LEVEL (**)

It would seem then following Hypothesis 4, that it could be concluded that there were few differences between measurements taken early in confinement and measurements taken following a period of confinement. Our data showed that the mean scores, or averages, were not statistically different. This is important to know. However, in using the mean, or average scores, any large score or scores in one direction can be balanced by a large score or scores in the opposite direction. Thus, it is important also to know how many or the percentage of those who do change behavior or change feelings toward confinement.

In order to find this out, a tally was made for each individual, telling whether his confinement score decreased, increased, or remained the same for the testing. These totals were treated with the Chi-square analysis and are presented as the first twelve variables in Table 20, page 86. It will be noted that there was change beyond that which should be expected by chance in seven of the twelve measurements of behavior. Thus, H_4 is supported in seven out of twelve instances.

Problem 4

Restatement of the Problem

Problem 4. To discover a significant difference in the acceptance of the psychological environment of confinement early in confinement and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of acceptance of the psychological environment of confinement early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H_5 : The acceptance of the psychological environment representative of confinement is no different early in confinement than following a period of confinement.

H_6 : The distribution of scores representing changes in feeling toward confinement from early confinement to later confinement will be uniform.

Tables 19 and 20, pages 84 and 86, present t values and Chi-square values for the measurement of the acceptance of the psychological environment. The last eight variables are concerned with this measurement.

TABLE 20 PERCENT IN SAMPLE WHO CHANGED SCORES DURING
CONFINEMENT TESTING (N = 33)

VARIABLE	PERCENTAGE			
	DECREASE	NO CHANGE	INCREASE	χ^2
PREDICTOR VARIABLES				
NURSE'S OBSERVATION SCALE				
1. SOCIAL COMPETENCE	37	12	51	7.81*
2. SOCIAL INTEREST	40	0	60	18.7**
3. PERSONAL INTEREST	29	42	29	1.27
4. COOPERATION	43	12	45	8.18*
5. IRRITABILITY	45	15	40	4.81
6. MANIFEST PSYCHOSIS	12	85	3	39.82**
7. PARANOID DEPRESSION	40	40	20	2.18
8. TENSION	43	6	51	11.45**
SELF DESCRIPTION SCALE I (LEADY)				
1. DOMINANCE (SUBMISSION)	34	0	66	22.0**
2. LOVE (HOSTILITY)	40	0	60	18.73**
TAT PROJECTIVE TEST				
1. EMOTIONAL TONE	30	24	47	2.36
2. OUTCOME	38	15	47	5.1
CRITERION VARIABLES				
SELF DESCRIPTION SCALE II (CONFINEMENT ACCEPTANCE)				
1. PHYSICAL CONFINEMENT	30	5	65	16.5**
2. PSYCHOLOGICAL CONFINEMENT	40	11	49	7.82*
3. LACK OF PRIVACY	34	15	51	6.5*
4. LACK OF PHYSICAL SUPPORTS	34	3	63	16.5**
5. LACK OF FAMILIAR BEHAVIOR PATTERNS	33	6	61	14.73**
6. LACK OF INTERPERSONAL RELATIONSHIPS	30	5	65	16.5**
7. LOSS OF IDENTITY	26	5	69	22.5**
8. FEARS	26	5	69	18.7**

FOR 2 DF χ^2 5.99 FOR P = .05 (*) AND 9.21 FOR P = .01 (**)

It will be noted that all of the t values for the measurement of Acceptance of Confinement reached statistical significance. Five (Physical Confinement, Psychological Confinement, Lack of Privacy, Lack of Familiar Behavior Patterns, and Loss of Identity) reached significance at the .05 level, while three (Lack of Familiar Physical Supports, Lack of Familiar Interpersonal Relationships, and Fear) reached significance at the .01 level.

All of the Chi-square values for the measurement of Acceptance of Confinement reached statistical significance at the .01 or .05 levels of significance. This means that we could expect changes similar to ours by chance only one time in a hundred times. Thus, H_0 is supported in all instances.

Related Analyses

Analyses of Variances

The small number of cases obtained from the individual hospitals do not lend themselves to rigorous statistical analyses to determine valid differences that exist among the hospitals in early and later confinement. However, analyses of variances were carried out for the three hospitals that contributed the most cases, namely, 16, 7, and 5. The F ratios are presented in Table 21, page 88 for the early confinement data and in Table 22, page 89 for the confinement data taken later. It will be noted that the F ratio was high for many of the variables, but that it reached significance for only six out of the twenty variables for early confinement. On the other hand, for later confinement, while several are high, only one reached significance and, with twenty variables, one might be expected by chance. One might note also that the mean scores for some hospitals change more than others and that the direction of change differs also. For example, for one hospital (see last line, Table 21, page 88) the Love score for early confinement is 58.40 but for later confinement (see last line, Table 22, page 89) has become 65.2. When the Love score is raised, the Hostility score is lowered. The other two hospitals showed only a point or two difference. The analyses of variances are included to develop insights into changes that took place and are discussed fully in connection with Problems 1, 2, 3 and 4.

TABLE 21 ANALYSES OF VARIANCES FOR THREE HOSPITALS: EARLY CONFINEMENT (N 16, 7 AND 5, RESPECTIVELY)

PREDICTOR VARIABLES	MEAN	S.D.	F RATIO	CRITERION VARIABLES SELF DESCRIPTIONS II (CONFINEMENT ACCEPTANCE)	MEAN	S.D.	F RATIO
1. SOCIAL COMPETENCE	45.81 47.43 42.40	3.75 2.76 5.77	2.42	13. PHYSICAL CONFINEMENT	44.00 25.43 44.00	9.26 19.58 14.37	5.13*
2. SOCIAL INTEREST	28.94 33.71 24.4	5.76 5.02 2.70	4.74*	14. PSYCHOLOGICAL CONFINEMENT	38.04 28.43 40.00	7.22 18.40 11.11	2.65
3. PERSONAL INTEREST	48.06 48.71 45.60	3.62 1.89 5.18	1.20	15. LACK OF PRIVACY	32.88 23.71 34.00	11.48 15.51 7.67	1.61
4. COOPERATION	40.81 40.96 38.00	6.12 7.20 5.66	0.41	16. LACK OF PHYSICAL SUPPORTS	34.19 21.71 30.40	7.30 15.22 13.05	3.30
5. IRRITABILITY	14.50 14.29 12.00	6.70 2.98 1.14	0.24	17. LACK OF FAMILIAR BEHAVIOR PATTERN	23.81 17.00 24.00	6.31 10.83 9.78	1.84
6. MANIFEST PSYCHOSIS	10.50 10.71 10.00	3.40 1.89 0.00	0.13	18. LACK OF INTERPERSONAL RELATIONS	26.81 22.43 30.00	6.21 10.61 11.18	1.27
7. PARANOID DEPRESSION	14.38 11.57 11.20	4.00 1.51 1.10	2.92	19. LOSS OF IDENTITY	20.50 14.15 19.40	10.22 6.55 15.04	0.83
8. TENSION	15.63 20.86 15.00	5.60 2.04 5.43	3.13	20. FEARS	38.19 25.86 30.80	7.16 15.89 7.66	4.26*
9. DOMINANCE (SUBMISSION)	46.06 48.57 42.80	8.20 2.23 7.09	0.98				
10. LOVE (HOSTILITY)	55.56 47.86 58.40	6.00 4.60 5.81	6.24*				
11. TAT EN TONE	48.81 45.00 51.20	3.17 1.83 4.15	6.40*				
12. TAT OUTCOME	53.38 46.29 54.20	5.51 2.98 5.17	5.70*				

FOR DF 2 AND 25 F 3.38 FOR P .05 (*) AND 5.57 FOR P .01 (**)

TABLE 22 ANALYSES OF VARIANCES FOR THREE HOSPITALS: LATER CONFINEMENT (N 16, 7 AND 5, RESPECTIVELY)

PREDICTOR VARIABLES	MEAN	S.D.	F RATIO	CRITERION VARIABLES SELF DESCRIPTION 11 (CONFINEMENT ACCEPTANCE)	MEAN	S.D.	F RATIO
1. SOCIAL COMPETENCE	45.63 47.71 48.00	3.76 2.61 2.55	1.48	13. PHYSICAL CONFINEMENT	36.94 30.86 38.40	7.89 16.86 8.07	0.97
2. SOCIAL INTEREST	30.13 32.86 29.40	5.10 5.76 4.39	0.67	14. PSYCHOLOGICAL CONFINEMENT	34.69 31.00 34.40	9.80 16.62 12.80	0.23
3. PERSONAL INTEREST	47.25 42.86 44.60	5.17 14.96 5.08	0.67	15. LACK OF PRIVACY	28.13 24.71 3.0	9.75 14.73 11.79	0.46
4. COOPERATION	42.13 41.02 44.60	5.75 6.90 3.78	0.58	16. LACK OF PHYSICAL SUPPORTS	26.94 23.86 22.60	8.05 13.03 10.67	0.48
5. IRRITABILITY	13.81 13.43 12.20	2.14 3.60 1.34	0.62	17. LACK OF FAMILIAR BEHAVIOR PATTERN	25.00 18.29 24.60	13.60 6.99 5.91	0.90
6. MANIFEST PSYCHOSIS	11.88 10.00 11.00	4.03 0.00 2.23	0.63	18. LACK OF INTERPERSONAL RELATIONS	21.81 20.71 27.80	5.70 8.75 10.43	1.54
7. PARANOID DEPRESSION	13.56 11.71 10.80	3.86 2.36 1.10	1.75	19. LOSS OF IDENTITY	15.50 16.43 13.40	6.59 9.16 10.88	0.21
8. TENSION	18.37 19.14 15.40	3.22 1.88 2.41	2.83	20. FEARS	30.50 27.29 31.40	5.80 15.70 9.76	0.34
9. DOMINANCE (SUBMISSION)	47.19 52.57 46.80	8.93 3.69 3.11	1.50				
10. LOVE (HOSTILITY)	58.83 48.28 65.20	5.88 8.20 4.97	11.16**				
11. TAT EM. TONE	47.69 45.71 48.20	4.78 2.56 5.63	0.58				
12. TAT OUTCOME	51.50 48.00 52.60	7.47 5.10 6.62	0.85				

FOR DF = 2 AND 25, F = 3.29 FOR P = .05(*) AND 6.67 FOR P = .01(**)

Problems 1, 2, 3 and 4 encompassed the work outlined in Tasks I, II, and III given in the scope of work of the contract (see Appendix A, page 127). Task IV attempted to ready the instruments developed during Tasks I, II and III for use in shelters as well as in contemplated shelter research.

Problem 5

Restatement of the Problem

Problem 5. To discover a significant relationship between two-man game decisions and cooperative behavior.

To answer this problem, two procedures were followed: (a) the development and use of a two-man decision making game, and (b) the evaluation of cooperative behavior.

To discover this relationship, the following hypothesis is presented:

H₇: There is a significant relationship between decisions to play cooperatively in a two-man game and cooperative behavior.

The game developed as a two-man game as an aid in the diagnosis of non-cooperative behavior was not ready to be used with the patients in the mental hospitals. Hence, it was given to others, namely, pairs of children and teenagers. In each case, one known to be cooperative was paired with one known to be non-cooperative.

In every case, the cooperative person received the most number of points. Inherent in the structure of the game is the fact that an individual, choosing to go alone, more often will lose, even though his winnings are attractive if he wins. This fact, however, is not apparent to the players and losses did not seem to alter the behavior pattern the players were following.

Projective Drawings.

The projective drawings* were included in the procedure to determine if

1. administration could be feasibly done in a short time span,
2. the drawings and inquiry would be complete enough to be quantitatively sensible and qualitatively interpretable,
3. the drawings would reveal current stresses not overshadowed by long standing stresses (the illness),
4. major points of agreement with results from other instruments could be found.

No attempt was made to provide data that would test the hypotheses of the study. Such an attempt would have required an expansion of the experimental design beyond the scope of the contract. Statistical procedures would have had to be worked out in advance thereby complicating the analysis of the data gained from the other instruments.

The following discussion refers only to the House, Tree, Person, Person drawings. The Most Unpleasant Concept will be discussed later. The Thematic Apperception Test has been discussed with the preceding section.

The total time required to administer the drawings individually and to groups of two to four subjects was one-half hour or less. Standard instructions were easily understood and subjects proceeded with a minimum of questions or upset. These statements hold both for the first and second administrations. The stresses under which the subjects operated on the first administration (within 24-hours of admission to the hospital) were certainly as severe as those likely to be found in a simulated shelter. In short, the technique is applicable to data collection in simulated shelters from an administration standpoint.

Inspection of the drawing and inquiry revealed that the productions were quantitatively scoreable and qualitatively interpretable. This conclusion refers, of course, to the large bulk of the drawings. A few cases were unscorable.

* Draw a House, a Tree, a Person, a Person of the Opposite Sex, and the Most Unpleasant Concept. Subjects are asked to complete the above drawings and then are asked to describe these after the drawings have been completed.

because of the paucity of detail in the drawings or a refusal to produce a drawing at all. These results are not unexpected. As a general rule, it is expected that a small portion of the results of any measuring instrument will be unusable.

In general, the drawings revealed both current and long standing stresses. In some cases, these stresses were relatively readily identifiable as current or long standing, in others the distinction was difficult to make, and in some cases, it could not be made at all. One problem requiring further work is when long term and current stresses are congruent or very similar.

Major points of agreement were found with the results from the other measuring instruments. Four such agreements are cited below.

- (1) Greater health (less stress) is revealed in the second administration.
- (2) High fear is seen in the first administration but this is significantly reduced in the second.
- (3) The first administration reveals high concern about the self while the second shows a diminution of this and an increase in concern about others.
- (4) Hostility is high and then decreases between administrations. Submissiveness and dependency increases over time. The second drawings show a marked increase in nurturant needs.

The value of the projective drawings lies in the depth and color they provide in the picture of the individual. Other techniques provide a skeleton while the projective drawings provide the flesh. They are primarily useful when used in conjunction with more structured measuring instruments. They must be integrated into a battery of measuring instruments and this method of integration requires further investigation.

The Most Unpleasant Concept Test should be considered a failure. While some drawings did produce usable results, the data gained is inferior to that obtained equally economically and feasibly by other methods. The technique is too sensitive to long standing stress.

It might be pointed out at this time, that to measure anything in large quantities has always been difficult. It is easier and more accurate to measure an individual as a single entity than a group of people. And, the larger the group,

the greater the difficulty. However, many tests are prepared to be given to people in groups, rather than individually, and are developed to meet standards set up for administration to large numbers.

Administration problems usually do not arise. Of course, the more who answer a questionnaire, the more papers there will be to score. However, the scoring methods of the instruments used in this research have been kept simple in anticipation of minimizing this potential problem. It is suggested that a plan for administration of tests be worked out and ultimately included in the shelter manager's guide or handbook, along with samples.

Chapter V

SUMMARY AND CONCLUSIONS

The possibility of a thermonuclear attack upon the United States has gained widespread acceptance among the general populace as well as among governmental officials. Such an attack would present problems of a scope beyond the imagination and control of most people. Therefore, great effort must be directed toward learning to identify, to define as clearly as possible, and to explore fully each problem in order to develop courses of action conducive to the survival and rapid recovery of the nation.

The total problem of a thermonuclear attack has been separated into several aspects to facilitate its discussion and study. In brief, these aspects are the pre-attack period, the attack period, the closed-up period, and the post-attack period (Nordlie and Popper, 1961). This investigation focused upon the psychological and social behaviors of people in the closed-up period.

According to Nordlie and Popper (1961), during the closed-up period, people are expected to be closed up for a period of time sufficient for radioactivity to decrease or to decay to an acceptable level where exposure would not be lethal. The specific duration of this period is difficult to assign because it will vary according to local conditions. A period of two weeks, however, has been accepted as a basic in-shelter planning period (Durkee, 1965) although in one locality the time period may be two hours and in a nearby locality two months. The closed-up phase emerges as the immediate physical effects of the impact phase end. It terminates for a given area when the radiation hazard subsides to a level which permits people to leave their shelter even if only for short time intervals.

In the early stages of exploration, very little of an encouraging nature was reported in the psychological and sociological literature concerning survival during the closed-up phase. Most opinions and reports indicated that fallout shelter occupancy was likely to be so traumatic that large segments of the population could not undergo it. However, there was so little relevant information available that studies had to be undertaken as Vernon (1959) indicated "...to determine whether or not a family could remain for fourteen consecutive days in a simulated fallout shelter." Since this early study, a number of well-designed studies have been done to clarify many of the ambiguities and problems of shelter

occupancy. For the most part, however, the emphasis of research has been on the physical aspects of a shelter program, and this is appropriate because until adequate data in this area are available, consideration of the psychological and sociological aspects of enshelterment is premature.

A review of the literature on stress as well as on shelter occupancy indicated a paucity of data that could be considered appropriate to the psychological environment of an actual shelter during an actual closed-up phase of an actual thermonuclear attack. One of the criticisms has been that, while the physical model of the shelter may have been appropriate, the psychological environment created was unrealistic. If one were to investigate psycho-social problems likely to arise during confinement in a shelter, a realistic psychological model of that environment must be created. This study attempted to approach realism through the use of patients confined to state and federally operated mental hospitals. Experience, as well as discussions, with psychiatrists and psychologists indicated that confinement in mental hospitals represented many aspects common to shelter confinement. In fact, people likely would be in a state of shock as they enter a fallout shelter and, hence, probably would be very similar to people with minor psychological disorders entering mental hospitals. Discussions of these similarities appear throughout the final report (see pages 10, 49, 50, 51, 52 and 53). Another important limitation of previous shelter studies has been bias brought in through the use of volunteer subjects to make up the sample to be studied. This study sought to minimize, if not eliminate, this bias by using patients who were representative of the normal population. The selected group were first admissions to the hospital who had "mild" disorders (see Appendix B for the criteria of selection). In addition to having good contact with reality, the subjects in the sample had an ability to react to the stresses inherent in being in a hospital and were capable of cooperating with those conducting the research. Another aspect of similarity was the restrictive nature of the hospital itself. It provided many of the features anticipated for shelter living.

Perhaps the most important handicap in defining shelter research comes from lack of agreement on just what constitutes a "problem" when considering behavior in shelters. McDermott had this to say regarding mass behavior:

While we must continue to probe the problems relating to mass behavior in a disaster, considerable evidence has been gathered to refute the notion that violence, hysteria, and general mayhem would be rife ... (1962, p. 4).

It would seem then that we are not concerned with extreme behaviors, but rather with the vast scope of intermediary problems, the extent and severity of which are not known. This study considered a problem as existing if an event was present that served to lessen the functioning of a shelteree as an individual or as a contributing member of a group. Any aspect of confinement that contributes, either negatively or positively, to the optimum functioning of an individual should be identified, defined, and explored. This investigation attempted to do this. One goal of these endeavors is to provide valid information for governmental officials so that wise decisions can be made concerning the worthwhileness of making provision for psycho-social problems, either all of them or certain selected ones.

The purpose of this research was (a) to discover, through carefully controlled methods, a set of criteria for the psychological environment found accompanying confinement; (b) to discover changes in behavior during confinement; and (c) to develop a diagnostic tool to aid in the identification of co-operative behavior. The scope of work also called for a review and evaluation of conclusions reached in previous shelter occupancy studies as well as the assembling of material related to psycho-social behaviors suitable for inclusion in a shelter manager's handbook.

Restatement of the Problems.

Problem 1. To discover significant relationships between behavior and the psychological environment of early confinement.

To answer this problem, two procedures were followed: (a) the development and use of instruments to measure behavior during the early period of confinement and (b) the development and use of an instrument to measure the psychological environment of early confinement.

To discover these relationships, the following hypothesis is presented:

H_1 : There is a significant relationship between human behavior as evidenced in twelve factors,

1. Social Competence
2. Social Interest
3. Personal Interest

-
4. Cooperation
 5. Irritability
 6. Manifest Psychosis
 7. Paranoid Depression
 8. Tension
 9. Dominance (Submission)
 10. Love (Hostility)
 11. Emotional Tone
 12. Outcome

and the acceptance of the psychological environment of early confinement as evidenced in eight factors,

1. Physical Confinement
2. Psychological Confinement
3. Lack of Privacy
4. Lack of Physical Supports
5. Lack of Familiar Behavior Patterns
6. Lack of Familiar Interpersonal Relationships
7. Loss of Identity
8. Fears

Problem 2. To discover significant relationships between behavior and the psychological environment following a period of confinement.

To answer this problem, two procedures were followed: (a) the use of the instruments (developed and used to measure behavior in Problem 1) after a period of confinement and (b) the use of the instrument (developed and used to measure the psychological environment in Problem 1) after a period of confinement.

To discover these relationships, the following hypothesis is presented:

H₂. There is a significant relationship between human behavior as evidenced in twelve factors (see Problem 1) and the psychological environment which follows a period of confinement as evidenced in eight factors (see Problem 1).

Problem 3. To discover a significant difference in behavior early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of behavior early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₃: Behavior early in confinement is no different from behavior following a period of confinement.

H₄: The distribution of scores representing changes in behavior from early confinement to later confinement will be uniform.

Problem 4. To discover a significant difference in the acceptance of the psychological environment of confinement early in and following a period of confinement.

To answer this problem, one procedure was followed: the evaluation of acceptance of the psychological environment of confinement early in confinement and following a period of confinement.

To discover this relationship, two hypotheses are presented:

H₅: The acceptance of the psychological environment representative of confinement is no different early in confinement than following a period of confinement.

H₆: The distribution of scores representing changes in feeling toward confinement from early confinement to later confinement will be uniform.

Problem 5: To discover a significant relationship between two-man game decisions and cooperative behavior.

To answer this problem, two procedures were followed: (a) the development and use of a two-man decision making game and (b) the evaluation of cooperative behavior.

To discover this relationship, the following hypothesis is presented:

H₇: There is a significant relationship between decisions to play cooperatively in a two-man game and cooperative behavior.

Problems 1, 2 and 3 encompass the work outlined in Tasks I, II and III given in the scope of work (see Appendix A, page 127). Task IV attempted to ready the

instruments developed during Tasks I, II and III for use in shelters as well as for use in contemplated shelter research.

Procedures.

A review of instruments best suited to study behavior related to confinement indicated that psychotic behavior was given too much emphasis. Since this study was interested in the behavior of normal or near-normal individuals, so that the sample would be very nearly like a sample of people confined to a shelter, it became necessary to create new instruments and to adapt those already existing.

Three different instruments were chosen to measure behavior. The "Nurse's Observation Scale for In-Patient Evaluation" also called the NOSIE, as revised, was used to objectively verify the subjective feelings reported by the patients in the other instruments. The "Self-Description I Scale" by Leary was used to measure subjective feelings of the subjects, while the Thematic Apperception Test, a projective technique, was used to measure the subject's unconscious feelings.

One instrument, "The Self-Description II Scale -- Acceptance of Confinement," was used to measure feelings toward confinement. This was developed especially for the study because no other instrument existed. Its development was based upon personal experience as well as personal communications with others interested in confinement.

One diagnostic tool, a two-man game, was developed for the study to identify cooperative behavior. The game, based upon a mathematical model, used materials likely to be routinely stocked in a shelter, namely, checkers and playing cards.

Findings.

The present investigation was designed to learn if relationships exist between certain behavior patterns and certain psychological stresses occurring during confinement.

Problem 1: Hypothesis 1. In testing H_1 , it was found that high Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension will accompany poor acceptance of confinement at the beginning of a period of

confinement but that those scoring high in these same five measurements will tend to score high also in the acceptance of Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity, and Fears. Also, with these five measurements, Dominance and Love correlate positively (high scores accompany high scores) while Submissiveness and Hostility correlate negatively (low scores accompany high scores).

Regarding the remaining behavior measurements, it was found that high scores on Social Competence, Personal Interest and Cooperation accompany low scores in the acceptance of confinement as evidenced in Lack of Familiar Behavior Patterns, Lack of Familiar Interpersonal Relationships, Loss of Identity and Fears although in two instances; i.e., Fears as correlated with Social Competence and Cooperation, little relationship was found.

Findings Related to Problem 1. While not hypothesized, additional findings are of interest and should be reported. A factor analysis extracted a large "G" or general factor along with four other factors of interest. A correlational analysis of the first five factors indicated that none were associated with each other in a positive manner, although Factor II and Factor IV had high correlations in the negative direction.

Problem 2: Hypothesis 2. In testing H_2 , it was found that high Personal Interest and Love (Lack of Hostility) scores tended to accompany high acceptance of confinement at the end of a period of confinement as evidenced in four measurements, the Physical Confinement, Psychological Confinement, Lack of Privacy and Lack of Familiar Physical Supports. High scores on Irritability, Manifest Psychosis, Paranoid Depression and Tension tended to accompany a lack of acceptance of confinement as measured in the preceding four measurements.

On the other hand, the four other measurements of acceptance of confinement after a period of confinement, namely, a high acceptance of Lack of Familiar Behavior Patterns, Lack of Interpersonal Relationships, Loss of Identity and Fears accompanied behaviors as evidenced in high scores of Social Interest, Irritability, Manifest Psychosis, Paranoid Depression and Tension.

Findings Related to Problem 2. While not hypothesized, additional findings are of interest and should be reported. A factor analysis again, as in Problem 1, extracted a large "G" or general factor along with three other factors of interest. A correlational analysis showed that Factor I and II were only slightly related while Factors III, IV and V showed a negative correlation.

Problem 3: Hypothesis 3. Two of the twelve measurements of behavior changed significantly as measured by the t test of significance during confinement, namely, Dominance (Lack of Submissiveness) and Love (Lack of Hostility). Some of the other twelve measurements showed differences which were high but did not reach statistical significance.

Problem 3: Hypothesis 4. In testing H_4 by Chi-square, it was found that eight of the twelve measurements of behavior changed significantly. The seven behaviors are: Social Competence, Social Interest, Cooperation, Manifest Psychosis, Tension, Dominance and Love.

Problem 4: Hypothesis 5. In testing H_5 by the test, it was found that all of the measurements changed significantly during confinement, showing that the psychological environment at the beginning of confinement is different from that following a period of confinement. The eight measurements of the psychological environment were: Physical Confinement, Psychological Confinement, Lack of Privacy, Lack of Familiar Physical Supports, Lack of Familiar Behavior Patterns, Lack of Familiar Interpersonal Relationships, Loss of Identity, and Fears.

Problem 4: Hypothesis 6. In testing H_6 by Chi-square, it was found that all of the measurements changed significantly during confinement, showing that the psychological environment at the beginning of confinement is different for most people from that following a period of confinement. The eight measurements are the same as in H_5 .

Findings Related to Problems 3 and 4. Analysis of Variances for the three hospitals contributing the most cases were carried out showing that patterns of behavior vary among the hospitals both before and after confinement and that a difference seems to exist between changes that take place during confinement.

Problem 5: Hypothesis 7. A relationship was found between two-man game decisions and cooperative behavior.

Conclusions.

The following conclusions appear justified on the basis of the results of the study under the limitations presented earlier and pending further validation procedures.

1. Certain behaviors appear to be important in the psychological environments that exist (a) at the beginning of a period of confinement and (b) following a period of confinement.

2. The psychological environments that exist at the beginning of and following a period of confinement can be (a) defined, (b) measured, and (c) controlled.

Implications.

The study developed and used successfully a set of diagnostic instruments. A hopeful application of these would be adaptation for inclusion in guides or handbooks planned for shelter management. A set of probable behaviors related to the results of the study have been developed as well as recommended appropriate actions. These are included as Chapter VI, rather than as an Appendix because they represent part of the study's scope of work as given in Appendix A, instead of an integral part of the investigation.

The extremely important major contribution of this study is the finding that there are identifiable psychological phenomena related to confinement. This implies that great care should now be taken in the interpretation of all research related to shelter occupancy.

Suggestions for Research.

The major finding that definable, measurable and controllable psychological environments exist in relationship to confinement poses many avenues for further research. Three are foremost.

1. Validation of the study.
2. Refinement of instruments used in the study.
3. Extension of the findings.

The review and evaluation of other studies of shelter occupancy indicate the following deserve initial or continued study.

1. Framework for research. It was almost an impossible task to compare findings from several research groups. By now, sufficient exploratory work has been done to enable a framework to be set up. The framework should define general areas of research as well as specific components in each area.

2. Definition of concepts. For the same reason, it was difficult to compare findings because the concepts used in the various research designs appeared, at times, to represent different phenomena. Thus, in the study just completed, the concept "problem" was carefully defined. However, "problems" are likely to exist on a continuum and concepts and/or definitions should be set up to specify them. This procedure is necessary not only to make future research designs meaningful but to provide base lines for subsequent hypothesis testing.

3. Reality of shelter simulation. It is helpful to note the limitations of shelter simulation in research reports. However, at times, this limitation seems to have made many of the results meaningless. Attempts to provide reality should be given greater emphasis.

4. Extension of studies to include post-attack period. While emphasis belongs on the closed-up period, consideration should be given to the condition people are in when they emerge from a shelter. This, in fact, is a highly valuable criteria of how successful the closed-up period was.

5. Shelter management.

(a) Management needs as well as the organizational structure of the shelter should be more clearly identified and designated.

(b) The shelter manager's handbook should be tested by itself and not confounded with many other variables.

(c) Communication as well as lines of control should be explored.

(d) Methods for the early identification and subsequent utilization of talent within the shelter should be developed.

(e) The finding that a good manager usually means a well run shelter indicates that more should be done to identify and train potential managers. Opportunities for the maximum development of the populace as a whole in peacetime should be explored.

(f) The entire area of subgroupings, emergent or deliberately formed, within the shelter population should be investigated.

6. Specific populations. Very little has been done to study behavior of specific groups teenagers, children, the aged, etc.

7. Defectors from previous shelter studies should be studied in greater detail. Problems they faced might well be important to large segments of people.

Finally, and more important than any other suggestions is the urgent recommendation that greater care be taken by all engaged in shelter occupancy research to carefully set up experimental designs that include sophisticated research methods. A variety of statistical analyses should be included. Rigorous statistical evaluations, as opposed to subjective reporting should be the basis of future research studies.

Chapter VI**RECOMMENDATIONS FOR SHELTER MANAGEMENT****Shelter Manager(s) Behavior Alternatives Available.**

Task IV of the scope of work provides for a set of tools for the shelter manager to use in detecting potential psycho-social problems, a set of behaviors to be sensitive to and actions which may be taken to reduce the severity of the psycho-social problems so identified.

It is not possible, of course, to present here the above material in a form suitable for direct inclusion into a shelter manager's handbook since the form is determined by the handbook of which it is a part. It is possible, however, to present data that can be used by shelter manager handbook designers with appropriate modifications to fit their needs.

Several formal measuring devices were utilized in the present study. Of these, the Thematic Apperception Test and the projective drawings technique are not suitable for use by the shelter manager. Although both these tools are useful experimentally, they require a degree of training and experience not likely to be found in most shelter managers. Consideration of the other instruments (see findings of the study) suggests that the NOSIE, Leary, and the Confinement Acceptance Scale can be modified for use by shelter managers. These instruments are easily administered and scored and their meaning is relatively straightforward. They are primarily useful as screening devices and can be used in at least two ways:

- (1) They can be administered to selected persons who on other bases, are felt to be potential problems. These bases may be behavioral, result from previous knowledge of the persons, found in data sheets collected in shelter, etc. The danger in this usage lies in selecting only certain persons to be tested and thereby singling them out to themselves and others.
- (2) They can be generally administered to all shelter occupants and thus used as a general screening device. Economic factors may preclude this usage.

The two-man games discussed previously are valid and easily used means of gaining insights into the psychological aspects of shelterees. The prime limitation here is that in large shelters taking shelterees two at a time is too time consuming to be feasible. This technique can, however, be used selectively where problems are suspected on other bases. Using the game developed in the present study as a base, variations can be readily developed. This will provide a variety of games and so extend the usefulness of this technique. The development of the two-man games indicated that this technique should be expanded to encompass n-persons. That is, the games can be so constructed that several (five or more) can play simultaneously. This development would remove one of the major limitations of two-man games for large shelters. The current study has demonstrated the feasibility of research in this area and further development should be encouraged.

If the above techniques are to be used by the shelter manager, a context for their use must be provided. The present study suggests that the eight confinement factors discussed earlier can provide such a context. Results clearly indicate that changes occur in these eight factors over time thereby showing that they represent significant psycho-social factors in confinement. Further, behavioral observations and remedial measures fit well into this context. The eight factors provide a framework within which indicators of psycho-social problems and suggested remedial measures can be feasibly placed and related.

A discussion of the relationship of the NOSIE, Leary, and Confinement Acceptance Scale to the eight factors has occurred earlier in the report. What remains is to consider behavioral indications and remedial measures in the context of the eight factors. Behavioral indicators are considered first.

It is not possible to relate individual behaviors to given factors because disturbance in several different areas may give rise to similar behaviors. For example, problems arising from a lack of familiar physical supports or from psychological confinement may show themselves in withdrawal behavior. Some behaviors, however, are relatively reliable and valid indicators of general problem areas. Given below is a list of behaviors that indicate potential problems especially if they persist over time and/or if their severity increases. Where possible, these are keyed by means of numbers to the following eight factors which appear in parentheses after each discussion.

1. Physical confinement
2. Psychological confinement
3. Lack of privacy
4. Lack of familiar physical supports
5. Lack of familiar behavior patterns
6. Lack of familiar interpersonal relationships
7. Loss of identity
8. Fears

Behavioral Signs of Psycho-Social Problems.

Two cautions are required before proceeding. First, it must be recognized that the severe indicators of stress are not considered since these will become apparent to the shelter manager at once. Actual psychotic or highly neurotic behaviors identify themselves quickly. Second, the signs listed below may not become apparent immediately after enshelterment. They may appear later in the occupancy or may appear and disappear only to reappear. Reappearance is, of course, a highly significant indicator of disturbance.

General Signs

1. Pointless Physical Activity

Very often the person appears busily engaged in meaningful activity. Close observation will show that the activity is, in fact, nonproductive and is being used as a shield against psychological problems. Example: College students who are doing poorly academically and cannot face this fact often engage in a whirl of social, fraternity or sorority, club, etc., activities thus being "too busy" to be aware of the real problem. (4, 5, 6, 7, 8)

2. Restlessness

Pointless physical activity must be distinguished from restless activity which is obviously nondirected. Example: The restless person wanders from place to place rarely remaining at one place very long. He flits from group to group or person to person without really establishing contact with the various groups or persons. (5, 6, 7, 8)

3. Sensitivity to Noise, Odors, Etc.

The human senses have a great capacity for adaptation and under normal circumstances operate so that awareness of stimuli impinging upon them is reduced. When this does not occur, it is an indication that normal processes are disturbed. Example: Adaptation to noise and toilet odors should occur to at least some extent. If complaints from a person (but not the group) increase, these are presumptive evidence of a disturbed psychological state. (6, 7, 8)

4. Overconcern with Oneself

This point is discussed in the chapter on findings. Successful enshelterment requires an other-person orientation. Overconcern with oneself indicates a withdrawal from others and a turning inward. In this case, personal psychological needs become overwhelming. Example: The shelteree views insufficient water, the food, radiation, etc., as problems relating only to himself rather than as group problems. Minor personal problems (small cuts, discomforts, etc.) become magnified and distorted. (7, 8)

5. Overeating

One common response to anxiety, feelings of inadequacy, etc., is eating. Example: Shelterees who beg food from others, are always hungry, line up early for food distribution, etc., are manifesting psychological rather than true hunger problems. (4, 5, 6, 7)

6. Thirst

Excessive thirst is a sign of anxiety. Example: Studies to date indicate some thirst is to be expected. A shelteree much thirstier than the group as a whole bears watching. (4, 5, 6, 7)

7. Sleep

Sleep disturbances, whether they be inability to sleep or inordinate time spent sleeping, indicate problems. Care must be taken not to misinterpret lack of sleep due to poor sleeping conditions. (1 through 8)

8. Daydreaming

This represents a withdrawal from the real world and becomes significant when satisfactions are gained from daydreaming rather than from the real world. Example: When daydreaming significantly reduces interpersonal contact it is excessive. (7)

9. Aches and Pains

These are in reality related to No. 4; overconcern with oneself, but occur frequently enough to deserve separate mention. Example: Certain aches, stiffnesses, etc., are to be expected in shelter living. It is the degree of concern which is important here. (7, 8)

10. Gripping

A certain amount of gripping is healthy but excessive gripping represents an unfavorable attitude which could be communicated to others. Example: A shelteree who is rarely satisfied with anything and complains about a variety of topics is showing unhealthy gripping. (1 through 8)

Intellectual and Judgmental Processes

1. Inability to Make Decisions

This is significant where decisions are of minor importance, the decider has the necessary information, and the authority to decide. (7)

2. Forgetfulness

Inability to remember events occurring prior to enshelterment or during enshelterment. Example: A shelteree is requested to perform a task which has several parts or which must be done several times. He "forgets" a part of the task or one or more repetitions of the task. (5, 6, 7)

3. Conversation is Scattered

Conversation requires a somewhat orderly progression of thought and responses to verbalizations of others. When thought is not orderly, or replies are inappropriate, conversation is scattered. (7)

4. Draws Unwarranted Conclusions

This must be differentiated from normal errors in judgment. Gross errors are easily detected but the finer shadings are difficult to evaluate. The shelter manager should obtain information or impressions regarding the shelteree's intellectual level, educational and work background, etc., to use as bases for judgment. (5, 6, 7, 8)

5. Problem Solving Difficulties

This sign is as difficult to interpret as is the preceding one. The shelter manager should be sensitive to difficulties in solving simple problems. This difficulty is related to loss of initiative, inability to make decisions, and nonlogical streams of thought. Example: Difficulty is experienced in drawing water from an almost empty water drum. The shelteree is unable to recognize the problem in such a way that remedial action can be taken. If the drum must be raised, he is unable to perceive objects in the shelter as potential stands upon which to place the water drum. (5, 6, 7, 8)

Emotions

1. Depression and Sadness

A certain degree of depression of emotions is to be expected especially in the early periods of enshelterment. If this persists, or appears severe, action is required. Depression and sadness are manifested in (1) crying, (2) slumped posture, (3) slow movements, (4) facial expression, (5) depressed response to bumps, cuts, etc. Be sure to query regarding the cause of sadness. If the shelteree cannot give a reasonable reason for his sadness, this is indication that sadness and depression may well increase. (2, 5, 6, 7, 8)

2. Fear and Apprehensiveness

Fear is a healthy emotion when it has an object. Anxiety is fear without an object and may seriously interfere with an individual's functioning. The points to be ascertained are whether the fear has an object and if it is in proportion to the threat posed to the person. (5, 6, 7, 8)

3. Irritability

Sporadic evidences of irritability are to be expected. If continuing or existing at a high level, they constitute a danger sign. (1 through 8)

4. Euphoria

Sadness and its opposite are both danger signs because they represent extremes. Continual high spirits and happiness are false emotions. (2, 5, 6, 7, 8)

5. Fluctuating Emotions

Mood swings from either extreme are noticeable when they occur. Normal varieties of emotion should occur but wide fluctuations are not normal. (1 through 8)

Bodily Reactions

The following reactions are generally self-explanatory. In some cases, they may be engendered by physical causes and one must be taken not to "read in" implications not there. All eight factors are represented here.

1. Weakness
2. Trembling
3. Crying
4. Nausea
5. Fatigue
6. Dizziness
7. Sweating

8. Stammering or stuttering -- ascertain if the onset of this symptom occurred recently.

9. Restlessness -- exemplified by inability to get comfortable, twisting, and turning, etc.

10. Startle reaction -- this is a standard response to intense, sudden stimuli. If exaggerated or occurring to minimal stimuli, it is a cue to psychological problems.

11. Breathing difficulties

12. Evacuation problems.

Interpersonal Relationships

All eight factors are represented here.

1. Docility and Dependency

Individuals who are overly suggestible or who are overly dependent may be withdrawing from the situation. Example: Shelterees who follow suggestions uncritically and are manipulated by others and who attach themselves to other persons are showing this symptom.

2. Rejection of Group Activity

Look for the "loner" who even with urging does not participate in group activity. This may represent (1) withdrawal, or (2) hostility. In the latter case, the person is setting up an "I versus the group" relationship.

3. Hostility

The disguised forms of hostility are important but hard to detect. Many occur within socially acceptable forms of behavior. Sarcasm is one such behavior. Example: Teenagers often speak sarcastically to each other ("cutting each other up"). This is an acceptable form of interaction but contains elements of disguised hostility.

4. Anti-Social Behavior

Lying, stealing, etc.

5. Sexual Behavior

Overt sexual behavior that contravenes morals may indicate an attempt to restore identity, bolster the self, reduce feelings of inadequacy, etc.

6. Status Seeking

Attempts to attain a superior position, define a position, obtain praise, etc., indicate the psychological balance is tenuous.

Remedial Measures.

The following discussion does not attempt to provide a finished product that can be directly transferred to a shelter manager's handbook. Nor does it attempt to provide general principles required as background for specific remedial measures. This background is readily obtainable in standard adjustment and mental health textbooks as well as in Civil Defense and American Psychological Association publications (i.e., Drayer, 1964). Rather, the following present examples of behaviors which the shelter manager or his representative can perform in a shelter to reduce stresses. They are grouped under the eight factors given previously.

1. Physical Confinement

This factor refers generally to physical restraints of movement and the requirement to function according to a fixed time schedule. Here the person's world is physically bounded with the size of this world being small. Remedial measures taken (and this applies in all factors) must not create more problems than they solve nor must they disrupt necessary shelter activity.

Since the physical size of the shelter cannot be increased, it is apparent size that must be dealt with. To the extent that different portions of a room or different rooms within a shelter can be made to appear different from each other, apparent size is increased. These differences can be in terms of physical appearance or in terms of differences in activities and functions within the rooms. Thus, attempts to assign functions to different rooms requiring people to move from place to place and decorating rooms differently may apparently expand shelter size.

Restrictions of movement may be required in crowded shelters but appropriate use of exercise periods can reduce perceived restrictions. To the extent feasible, some gross muscular activity should be utilized.

The assignment of jobs to individuals feeling physically restrained is often helpful. The physical space is then redefined as an area in which work is to be done. If the job selection is judicious, ample room to do the job exists and the feeling of confinement is reduced.

In certain cases, the existence of a job can serve as a justification for the constricted individual to violate prescribed time schedules. Constriction is thus reduced and other shelterees do not feel that exceptions are being made.

2. Psychological Confinement:

Confinement here relates to the ability to make choices rather than to physical movement. Of course, the two are related in that physical factors influence the choices available but the emphasis is on choice.

The shelteree cannot make all his own decisions, decide which physician to see, select shelter occupants, choose which clothes to wear, select food, etc. To the extent that decisions can be made by the individual this should be encouraged. For example, while he must obtain his food ration at a given time, choice in when it is eaten can be allowed. This is not true for children (Hale) and care must be taken to assure that food rations are consumed. Encouragement should be given to attempts to decorate and brighten the shelter. Choice can also be introduced into the selection of jobs and how these are done. For example, children must have recreation and must be led in this. Considerable choice of method exists.

3. Lack of Privacy

This is an extremely difficult problem because shelters are intrinsically not private. Some degree of privacy can be introduced by providing:

- (a) A commode usage system such that when the commode is in use others do not barge in.
- (b) A small section of the shelter blocked off during certain periods by food boxes, etc., to be used as a "quiet room." Time stay per person is limited in advance.
- (c) Recreation for children structured so that adults have some time alone together.
- (d) The use of empty boxes as personal belonging boxes. An individual thus can have a space to call his own (or the family's own) where possessions can be kept undisturbed.

4. Lack of Familiar Physical Supports

Very little can be done in this area unless individuals have brought articles with them. Caution must be used in allowing individuals to develop feelings of ownership since cooperation and sharing may be mandatory. Creating a small corner as a familiar haven may encourage withdrawal symptoms and thus do more harm than good.

5. Lack of Familiar Behavior Patterns

Shelterees will be required to develop new behavior patterns and a new social structure. The lack of familiar behavior patterns results in fear of the unknown and ambiguous. Recent research and on-going research at the Office of Civil Defense clearly recognizes the need for imposed structure within the shelter. Many helpful methods will be available upon completion of this research. For given individuals, patterns can be established by

- (a) Providing tasks and responsibilities that are fairly routine and reoccurring.
- (b) Defining behaviors required for concrete situations, e.g., eating, commode usage, recreation, etc.
- (c) Enlisting the aid of well-adjusted shelterees in forming friendships with those having difficulty accepting relationships. Here allow trial and error in developing new behavior patterns.
- (d) Aid the individual in restricting his behaviors to relatively small segments of the shelter and so develop new behavior patterns sequentially.

6. & 7. Lack of Familiar Interpersonal Relationships and Loss of Identity

These two factors while different are closely related. For example, in order to establish interpersonal relationships a sense of personal identity must exist. Likewise, the sense of identity grows from interpersonal relationships.

Someone to confide in is extremely important here. The existence of a counselor will operate significantly not only to reduce problems in these factors but in others as well. It is important that the counselor be very

carefully selected in terms of competence and the other roles he plays. The factor of competence is well documented in previously mentioned publications by the Office of Civil Defense and the American Psychiatric Association as well as general publications in the mental health field. The counselor must not play other roles in which he administers rewards or punishments, determines status, etc. For example, on a college campus, the Dean of Men (or Women) rarely can function as a counselor.

Job assignments should be carefully selected and not be beyond the individual's capabilities to help develop new relationships and re-establish identity. When possible, badges or "accoutrements by office" should be provided.

Again, the use of well-adjusted shelterees as "buddies" is efficacious. Not only does this provide identity and relationship foundation but the person acting as a "buddy" gains from the role he plays.

8. Fears

Fears and anxieties stem generally from unstructured or ambiguous situations. Current developments of methods of structuring the shelter will be extremely helpful. The methods described under the other seven factors will tend to decrease ambiguity and so lessen fears. The presence of a counselor is important because when fears are verbalized, they can be examined, evaluated, and some action taken. Of prime importance is the reduction of idle time. The opportunity to brood and look inward should be reduced as much as possible.

Summary.

The discussion above represents a first step forward providing shelter managers with concrete aids in reducing psychological problems. As research continues, this area must be broadened, refined, and most of all, made specific. The shelter manager has personal problems to cope with also and so aids for him must be clear, simple, concrete, and readily usable. Philosophical or theoretical discussions serve only to confuse rather than help.

REFERENCES

- Ainsworth, Leonard H. R Rigidity, Insecurity and stress. J. Abnorm. Soc. Psy., 1958, 56, 67-74.
- Albert, Robert S. Psychological and communicative processes contributing to panic behavior. J. Soc. Psychol., 1956, 44, 73-81.
- Altman, J.W., Smith, R.W., Meyers, R.L., McKenna, F.S., & Fryson, S. Psychological and social adjustment in a simulated shelter. American Institute for Research, Contract CDM-SR-60-10, 1960.
- American Psychological Association Council of Editors. Publication Manual of the American Psychological Association. (1957 rev.) Washington. APA, Inc., 1957.
- Applezweig, M.H., & Moeller, G. The role of motivation in psychological stress. New London, Conn.: Dept. of Psychology, Conn. College, Jan. 1957. Contract No. 996(02), Project NR 171-228.
- Baker, G.W., & Bauer, M.L. Fallout shelters and human behavior. Disaster Research Group, National Academy of Sciences -- National Research Council. Paper read at the 30 November 1961 meeting of the Building Research Institute Fall Conference, Washington, D.C.
- Baker, G.W., & Rohrer, J.H. (Eds.). Symposium on human problems in the utilization of fallout shelters. Disaster Study Number 12. Washington. National Academy of Sciences-National Research Council, 1960.
- Barthol, Richard P., & Ku, Nani D. Regression under stress to first learned behavior. J. Abnorm. Soc. Psy., 1959, 134-136.
- Beach, H.D., & Lucas, R.S. (Eds.). Individual and group behavior in a coal mine disaster. Disaster Study Number 13. Washington. National Academy of Sciences-National Research Council, 1960.
- Beier, E.G. The effect of induced anxiety on the flexibility of intellectual functioning. Psychol. Monogr., Vol. 65, No. 326.
- Berkum, M.M., Timeras, T.S. & Pace, N. Psychological and physiological responses in observers of an atomic test shot. Psychol. Rep., 1958, 4, 619-682.
- Biderman, A.D. The relevance of studies in internment for the problems of shelter habitability. In G.W. Baker and J. H. Rohrer (Eds.), Disaster Study Number 12. Washington. National Academy of Sciences-National Research Council, 1960.
- Biderman, Albert D. The relevance of internment for the problem of shelter habitability -- working paper. Washington, D.C. Disaster Research Group, Division of Anthropology and Psychology National Academy of Sciences, National Research Council, 1958.

REFERENCES (Cont'd)

- Bovard, E.W. A note on the threshold for emotional stress. Psychol. Rev., 68, 216-218 (1961).
- Bovard, E.W. Social stimuli and the response to stress. Psych. Rev., 66, 267-277, (1959).
- Buck, J.N. The HTP technique -- a qualitative and quantitative scoring manual. J. Clin. Psych., Monograph Supplement No. 5, Oct. 1948.
- Cartwright, D., & Zander, A. (Eds.). Group dynamics: research and theory. White Plains, New York: Row, Peterson and Co., 1956.
- Castaneda, Alfred & Lipsitt, Lewis P. Relation and stress and differential position habits to performance in motor learning. J. Exp. Psychol., 1959, 57, 25-30.
- Chansky, Norman M. Stress, reinforcement and learning. Dis. Abs., 1958, 19, 368-369.
- Chiles, W.D. Psychological stress as a theoretical concept. WADC Technical Report No. 57-457, 1957.
- Cowen, E.L. The influence of varying degrees of psychological stress on problem solving rigidity. J. Abnorm. Psychol., 1959 (June).
- Davis, J.D., McCourt, W.F., Courtney, J. & Solomon, P. Sensory deprivation. Arch. of Gen. Psych. 5, July, 1961, 106-112.
- Deese, James, & Lazarus, Richard S. The effects of psychological stress upon perceptual-motor performance, USAF. Hum. Resour. Res. Cent., Res. Bull., 1952, No. 52-19, V. 15 P.
- Diederich, P.B. Short-cut statistics for teacher-made tests. Evaluation and advisory service series No. 5. Princeton, New Jersey: Educational Testing Service, 1960.
- Donaldson, J., Magnuson, K., McHugh, L., Niner, R., Watt, F., & Zink, A. An examination of psychological problems during shelter confinement following a thermonuclear attack. Operations Research Office, Johns Hopkins University, March, 1959.
- Drayer, C. D., et al. First aid for psychological reactions in disasters. American Psychiatric Association, 1964.
- Durkee, W.P. Civil Defense 1965. Department of Defense, Office of Civil Defense. MP-30. Washington: April, 1965.
- Edgerton, Harold A. Personnel factors in polar operations. New York: Richardson, Bellows, Henry and Co., Inc., May, 1953.

REFERENCES (Cont'd)

- Edwards, A.L. Experimental design in psychological research. (Rev. Ed.) New York: Holt, Rinehart and Winston, 1961.
- Fraser, D.C. Environmental stress and its effect on performance. Occup. Psychol., 1957.
- Fritz, C.E., Rayner, J.F., & Guskin, S.L. Behavior in an emergency shelter: a field study of 800 persons stranded in a highway restaurant during a heavy snowstorm. Washington, D.C.: National Academy of Sciences, National Research Council, May, 1958.
- Fulkerson, Samuel C. Individual differences in reaction to failure-induced stress. J. Abnorm. Soc. Psychol. 1960 (Jan.), 60, 136-139.
- Gaito, J., Hanna, T.D., Bowe, R. & Greco, S. Environmental effects of sealed cabins for space and orbital flights. Part 3. Performance habitability aspects of extended confinement, Philadelphia, Pennsylvania: Naval Air Materiel Center, 1958.
- Gautnev & Jones, Fallout shelter communications study. Office of Civil Defense, Department of Defense, Contract No. OCD-OS-62-123, 1962.
- Gibby, R.G., Adams, H.B., & Carrera, R.N. Therapeutic changes in psychiatric patients following partial sensory deprivation. Arch. of Gen. Psych., 3, July, 1960, 57-65.
- Goldbeck, R.A., & Newman, Paul H. Habitability test of the NRDL 100-man shelter. American Institute of Research, February, 1960.
- Goldstein, R.H. Behavioral effects of psychological stress. Dissertation Abstr., 1959 (Jan.) 17, 3364.
- Grinspoon, Lester. Fallout shelters and mental health. Resident Physician, May, 1963, 76-81.
- Grinker, Roy R., & Spiegel, J.P. Men Under Stress. Bladeston, Pa., 1945.
- Hale, J.F., Rosenfeld, M., & Berkowitz, M.I. Laboratory investigations of shelter management factors. OCD Contract No. OCD-PS-64-57, Subtask 1519A. January 1965.
- Hammes, J.A., Osborne, R.T., et al. Shelter occupancy studies at the University of Georgia (includes appendices and summary). Final Report OCD Contract No. OCD-OS-62 226, Subtask 1521A, 1963.
- Hammes, J.A. Shelter occupancy studies at the University of Georgia. Final Report. OCD Contract No. OCD PS-64-77, Subtask 1521A. 1964.
- Hanifan, D.T., Blockley, W.V., Mitchell, M.B., & Strudwick, P.H. Physiological and psychological effects of overloading fallout shelters. Office of Civil Defense, Department of Defense, Report No., OCD-OS-62-137, 1963.

REFERENCES (Cont'd)

- Harris, William, Mackie, Robert R., & Wilson, C.L. Research on the development of performance criteria. Tech. Rept. No. VI., Performance under stress: a review and critique of recent studies. Los Angeles, California: July, 1956.
- Heilburn, Alfred B., Jr. The effects of various shock-stress conditions upon a complex perceptual-motor task. J. Pers. 1959 (Sept.) 27, 285-299.
- Heiskell, R.H. Environmental studies of a 100-man underground shelter. Proceedings of the meetings on environmental engineering in protective shelters 8, 9 and 10, February, 1960.
- Hilmar, N.A. In G. W. Baker and J.H. Rohrer (Eds.). Symposium of human problems in the utilization of fallout shelters. Disaster Study Number 12. Washington: National Academy of Sciences-National Research Council, 1960, pp. 121-124.
- Honigfeld, G. & Klett, C. The Nurses Observation Scale for Inpatient Evaluation: A new scale for measuring improvement in chronic schizophrenia. Cooperative Studies in Psychiatry Report Number 60. Perry Point, Maryland: Central Neuropsychiatric Research Laboratory, 1964.
- Jackson, Elton F. Status consistency and symptoms of stress. Amer. Social. Rev., 1962, 27 (4), 469-480.
- Janis, I.L. Psychodynamic aspects of stress tolerance. Paper under the auspices of the Bureau of Science Research, Inc., Washington, D.C., 1962.
- Janis, I.L. Psychological stress. Wiley, 1958.
- Janis, I.L. Chapman, D.W., Gillin, J.P., & Spiegel, J.P. The problem of panic. Washington Federal Civil Defense Administration, TB-19-2, 1955.
- Jones, Austin. The efficiency of utilization of visual information and the effects of stress, J. Exp. Psychol., 1959 (Dec.), 58, 428-432.
- Jones, M.B. Personal autonomy and confinement in the Naval Service. Pensacola, Florida: U.S. Navy, School of Aviation Medicine, 1956.
- Katchmar, Leon T., Ross, Sherman, & Andres, T.G. Effects of stress and anxiety on performance of a complex verbal-coding task. J. Exp. Psy., 1958, 55, 559-564.
- Kinsey, J.L., and Murphree, H.B. Claustrophobic reactions to some stresses of the submarine service. New London, Connecticut: U.S. Navy Submarine Medical Research Laboratory, 1955.
- Kollar, Edward J. Psychological stress, J. of Nervous and Mental Diseases. 132, 382-396, 1961.

REFERENCES (Cont'd)

- Lanzetta, John T. Group behavior under stress. Human Relations, 1955, 8, 29-51.
- Lazarus, R.S., Deese, J., & Osler, S. The effects of psychological stress upon performance, Psycho. Bull., 1952, 45, 293-317.
- Lazarus, R.S. & Erickson, C.W. Effects of failure stress upon skilled performance. J. Exp. Psy., 1952, 43, 100-105.
- Leary, T. Interpersonal Diagnosis of Personality. New York: Ronald Press.
- Leary, T. & Harvey, Joan. A methodology for measuring changes in psychotherapy. Jnl. Cl. Psych. Number 3, 1956, 123-132.
- Levanway, Russell W. The effect of stress on expressed attitudes toward self and others. J. Abnorm. Soc. Psychol., 1955, 50, 225-226.
- Lindsley, D.D. A study of performance under stress. Psy. Abstr., 20, Number 4829.
- Lunzetta, John T. Group behavior under stress. Hum. Relat., 1955, 8, 29-52.
- McDermott, E.A. Introduction. In G. W. Baker & L.S. Cottrell, Jr., (Eds.), Behavior Science and Civil Defense. National Academy of Sciences-National Research Council, Publication 997. Washington: National Research Council, 1962
- Meerloo, Joost, A.M. Mental danger stress and fear. J. of Nervous and Mental Diseases, 1957, 125, 357-379.
- Murray, E.J. Adjustment to environmental stress in fallout shelters. In G.W. Baker and J.H. Rohrer (Eds.), Symposium on human problems in the utilization of fallout shelters. Disaster Study Number 12. Washington: National Academy of Sciences-National Research Council, 1960, 59-66.
- Murray, H.D. Thematic Apperception Test manual. Cambridge, Massachusetts: Harvard University Press. 1943.
- Nordlie, P.G., & Popper, R.D. Social phenomena in a post-nuclear attack situation. AFOSR Technical Note 60-1495, 1961.
- Ormiston, D.W. A methodological study of confinement. WADDTR 61-257, March, 1961
- Ormiston, D.W., & Finkelstein B. The effects of confinement on intellectual and perceptual functioning. ASDTR 61-577, October, 1961.
- Osler, S.F. Intellectual performance as a function of two types of psychological stress. J. Exp. Psycho., 1954, 47, 115-121.

REFERENCES (Cont'd)

- Palermo, David S. Proactive interferences and facilitation as a function of amount of training and stress. J. Exp. Psychol., 1957, 53, 293-296.
- Postman, L., & Bruner, J.S. Perception under stress. Psychol. Rev., 55, 314-323.
- Potanin, Natalia. Perceptual preferences as a function of personality variables under normal and stressful conditions. J. Abnorm. Soc. Psychol., 1959 (July), 59, 108-113.
- Powell, J.W., Rayner, J.F., & Finesinger, J.E. Responses to disaster in American cultural groups. Symposium on stress. Washington, D.C.: Army Medical Service Graduate School, Walter Reed Army Medical Center, 15-18, March 1953, 174-193.
- Rabbie, Jacob M. Differential reference for companionship under threat. J. Abnorm. Soc. Psychol., 1963, 67 (6), 643-648.
- Ramskill, E.A., Bogardus, H.F., et al. Studies of the Bureau of Yards and Docks Protective Shelter 1. Winter Trials, NRL Report, 5882.
- Rao, Kunapuli U. & Russell, Roger W. Effects of stress on goal setting behavior. J. Abnorm. Soc. Psychol., V. 61, No. 3, 1960, 380-388.
- Rasmussen, J.E. Psychologic discomforts in 1962 Navy protective shelter tests. J. Amer. Dietetic Assoc., Vol. 42, No. 2, February, 1963.
- Rayner, J.F. An analysis of several surveys relative to problems of shelter habitability. Washington, D.C.: National Academy of Sciences-National Research Council, January, 1960.
- Reid, D.D. Sickness and stress in operational flying. Brit. J. Soc. Med., 1948, 2, 123-131.
- Reynolds, George S. The effects of stress upon problem solving. J. Gen. Psychol., 1960 (Jan.), 62, 83-88.
- Rohrer, John H. Human adjustment to Antarctic isolation. Washington, D.C.: Department of Navy, Office of Naval Research, June, 1959. (a)
- Rohrer, John H. Studies of human adjustment to polar isolation and implications of those studies of living in fallout shelters. Working paper. Washington, D.C.: Disaster Research Group, Division of Anthropology and Psychology, National Academy of Sciences, National Research Council, 1959. (b)
- Rohrer, John H. Studies of human adjustment to submarine isolation and implications of those studies for living in fallout shelters. Working paper. Washington, D.C.: Disaster Research Group, Division of Anthropology and Psychology, National Academy of Sciences -- National Research Council, 1959. (c)

REFERENCES (Cont'd)

- Ross, B.M., Rupel, J.W., & Grant, D. A. Effects of personal, impersonal and psychological stress upon cognitive behavior in a card-sorting problem. J. Abnorm. Soc. Psychol., 1952, 47, 545-551.
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. I. Basic Psychology of group behavior. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October, 1961. (a)
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. II. Dimensions of group structure and group behavior. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October 1961. (b)
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. III. Environmental stress and behavior ecology. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October, 1961. (c)
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. IV. Organizational staffing. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October, 1961. (d)
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. V. Organizational management and leadership. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October 1961. (e)
- Sells, S. B. Military small group performance under isolation and stress. An annotated bibliography. VI. Leadership in formal groups. Ft. Wainwright, Alaska: Arctic Aeromedical Laboratory, October, 1961. (f)
- Sellitz, C., Jahoda, M., Deutsch, M., & Cook, S. Research methods in social relations. (Revised One Volume Ed.) New York: Holt, Rinehart and Winston, 1961.
- Smith, Ewart E. Effects of threat induced by ambiguous role expectations on defensiveness and productivity in small groups. University of Colorado Group Process Lab. Tech. Report Number 1. August, 1956.
- Steinberg, Hannah & Russell, Roger W. Transfer effects in reactions to "stress." Quart. J. Exp. Psy., 1957, 9, 215-220.
- Strope, W. E., Etter, H.S., Goldbeck, R.A., Hirske, R.H., & Sheard, J.H. Preliminary report on the shelter occupancy test of 3-17 December 1959. Research and Development Technical Report USNRDL TR-418. May, 1960.
- Strope, W. E., Etter, H.S., Schultz, D.P., & Pond, J.I. The family occupancy test, 4-6 November, 1960. USNRDL TR-578. U.S. Naval Radiological Defense Laboratory. 22 August 1962.
- Strope, W.E., Schultze, D.P., & Pond, J. I. Preliminary report on the shelter occupancy test of 25-29 July, 1960. U.S. Naval Radiological Defense Laboratory. 21 March 1961.

REFERENCES (Cont'd)

- Taylor, Janet A. The effects of anxiety level and psychological stress on verbal learning. Quart. J. Exp. Psy., 1957, 9, 215, 220.
- Thorndike, R. L. & Hagen, E. Measurement and evaluation in psychology and education. (2nd Ed.) New York: J. Wiley and Sons, Inc., 1961.
- Tiffin, J. Industrial Psychology. New York: Prentice-Hall, Inc., 1952.
- Torrance, E. Paul. The behavior of small groups under the stress conditions of "Survival." Amer. Sociol. Rev. 1954, 19, 751-755.
- Ulrich, Celeste & Burke, Roger K. Effects of motivational stress upon physical performance. Res. Quart. Amer. Assn. Hlth. Psy. Educ., 1957, 28, 403-412.
- Udansky, George, & Chapman, Loren J. Schizophrenic-like responses in normal subjects under time pressure. J. Abnorm. Soc. Psycho., 1960 (Jan.) 60, 142-146.
- Vernon, J. A. Generalizations from sensory deprivation to fallout shelters. In G. W. Baker and J. H. Rohrer (Eds.). Symposium on human problems in the utilization of fallout shelters. Disaster Study Number 12. Washington: National Academy of Sciences-National Research Council, 1960, 59-66.
- Vernon, J. A. Project hideaway. Office of Civil Defense, Contract No. CDM-SR-60-15, 1959.
- Vogel, Williams, Raymond, Susan, & Lazarus, R. S. Intrinsic motivation and psychological stress. J. Abnorm. Soc. Psychol., 1959, 58, 225-233.
- Washburne, Norman F. Survey of human factors in military performance in extreme cold weather. Washington, D. C.: George Washington University, HumRRO, June, 1960.
- Wexler, Donald, Mendelson, Jack, Leiderman, P. H., & Solomon, Philip. Sensory deprivation. A.M.A. Arch. of Neurol. Psychiat., 1958, 79, 225-233.
- Wright, H. W. Inter-allied conference war medicine. (1942-1945), 1, 244-246, 1947.
- Zander, Alvin. Group membership and individual behavior. Human Relations, 1958, 11, 99, 111.

APPENDIX A
SCOPE OF WORK

A. Specific work and services to be performed shall include, but not be limited to, the following:

1. Description of the psychological environment of the shelter.
 - a. Critical review and evaluation of the pertinent literature on psychological stress and behaviors under stress.
 - b. Definition or description of the psychological processes, both positive and negative, occurring within the shelter.
2. Discover and use an analogy to the model.
 - a. The psychological environment existing in mental hospitals will be explored and evaluated as an analogue to the model.
 - b. This analogue will be studied to refine and validate the model.
3. Measurement of psychological inputs, process, and resultant behaviors
 - a. A sample will be selected to be representative of the general population and will meet the criteria set up defining appropriate subjects for study. For example, schizophrenics, sociopaths, individuals actively hallucinating, etc., will be omitted.
 - b. The physical and psycho-social variables of interest will be identified and conditions provided to allow for their operation. These will include, among others, temperature, leadership quality and type, emergent leaders, personal hygiene, and the psychological factors.
 - c. Appropriate measuring instruments will be selected.
 - d. The measuring instruments will be applied to the sample at intervals of sufficient length to provide valid data on the psycho-social processes under investigation.
 - e. The psychological processes under investigation will be ordered in regard to probable occurrence and importance of resulting behavior.
 - f. Data will be compiled and analyzed to yield validating comparisons with data from existing occupancy studies.

g. Methods and techniques will be evolved for use in future occupancy studies to yield data to close the existing gaps in enshelterment knowledge.

h. Construction and testing of two-man games for eventual use by the shelter manager.

4. Shelter manager(s) behavior alternatives available.

a. On the basis of the preceding, a set of diagnostic tools will be provided for the shelter manager(s).

b. A set of probable behaviors related to results obtained from the diagnostic tools will be provided.

c. A set of appropriate actions to be taken by the shelter manager(s) in response to the utilization of the diagnostic tools will be provided.

APPENDIX B

CRITERIA FOR SELECTION OF STUDY SAMPLE

I. PATIENT SELECTION

It is difficult to exactly specify which patients should be selected for the project. Reliance cannot be placed solely on diagnostic categories since (1) the patients must be tested before diagnosis is available (during the first 24 hours after admission) and (2) they will probably cut across several diagnostic categories. The enclosed set of criteria taken from the Gray Book can be used as a rough screening device to give an idea of the type of patient who would probably be most suitable. Please note that on the Gray Book criteria sheet those diagnostic categories indicated as acceptable represent the "best" (least ill) patients the hospital is likely to admit.

The basic criteria to be used in selecting patients for the project are:

1. The patient should be in good enough contact with reality to be able to be given the selected TAT cards and drawing tests and able and willing to fill out the self-administering rating scales.

2. The patient should be well enough to appreciate the stress of being hospitalized.

(a) Patients must be first admissions to a mental hospital or not previously hospitalized for a period of at least five years. If a previous hospitalization has occurred, this should not have been a long term hospitalization (say 5 years or more).

(b) The age range allowable is 12 years through 50 years. Please attempt to get some patients throughout this whole range.

(c) Organicity or suspicion of organicity precludes use of the patient in the project.

(d) Mental retardation or suspicion of retardation precludes use of the patient in the project.

(e) Certain types of patients may perceive hospitalization as a reduction of stress. For example highly anxious patients may find that the structure of the

hospital ward leads to anxiety reduction. These patients can be included in the study.

3. The patient should not be so ill that stresses occurring as a result of hospitalization are masked on the test instruments by the stresses of his illness. For example, a delusional patient's illness might be such that all that shows up on the TAT, I'PPP, etc., is his illness and no stress of hospitalization because the stress of hospitalization is hidden by his illness.

4. The patient must be on a closed ward for at least four days. When a patient receives ground privileges, goes to an open ward, etc., he can no longer be used in the project. The patient can only be a subject while he or she is on a closed ward.

5. Where possible, patients not receiving or not likely to receive medication should be used. If patients without medication are unavailable, preference should be given to patients receiving the least medication.

6. Patients of both sexes are required in the project. Where possible, an equal division between the sexes is desired.

Since hospitals vary widely regarding admission procedures it is felt that each psychologist participating in the project should be given freedom in the method of obtaining appropriate patients.

SAMPLE CRITERIA

The following are sample criteria which may serve as a guide to you.

- I. Acute Brain Syndrome -- No
- II. Chronic Brain Syndrome -- No
- III. Mental Deficiency -- No
- IV. Involutional Psychotic Reaction
 - 1. Mild Only
- V. Affective Reactions
 - 1. Mild Only
- VI. Schizophrenic Reactions
 - 1. Simple -- No
 - 2. Hebephrenic -- No
 - 3. Catatonic -- No
 - 4. Paranoid -- Yes, Mild
 - 5. Acute Undifferentiated -- No
 - 6. Chronic Undifferentiated -- No
 - 7. Schizo-Affective -- Yes, Mild
 - 8. Childhood -- No
 - 9. Residual -- Yes, Mild
- VII. Paranoid States -- No
- VIII. Psychophysiologic Autonomic and Visceral Disorders -- Yes
- IX. Psychoneurotic Disorders
 - 1. Anxiety Reaction -- Yes
 - 2. Dissociative Reaction -- No
 - 3. Conversion Reaction -- No
 - 4. Phobic Reaction -- Yes
 - 5. Obsessive-Compulsive Reaction -- Yes
 - 6. Depressive Reaction -- Yes
 - 7. Psychoneurotic Reaction, Other -- Yes
- X. Personality Pattern Disturbances -- Yes
- XI. Personality Trait Disturbances -- Yes
- XII. Sociopathic Personality Disturbances
 - 1. Anti-social Reaction -- No
 - 2. Dyssocial Reaction -- Yes

XII. Sociopathic Personality Disturbances (Cont'd)

3. Sexual Deviation -- Yes
4. Addiction Alcohol -- Yes
5. Addiction Drug -- No

XIII. Transient Situational Personality Disorders

1. Transient Situational Personality Disturbance -- Yes
2. Gross Stress Reaction -- Yes
3. Adult Situational Reaction -- Yes
4. Adjustment Reaction of Infancy -- No
5. Adjustment Reaction of Childhood -- No
6. Adjustment Reaction of Adolescence -- Yes
7. Adjustment Reaction of Late Life -- No

APPENDIX C

THE PSYCHOLOGICAL ENVIRONMENT OF CONFINEMENT

The material in the first part of this section, "Selected Items from the Confinement Factors Questionnaire," was taken from the questionnaires filled out by staff members of each hospital. Hospital b filled out two copies, one for each of two admission wards. The sections following, "Patients' Feelings Early in Confinement" and "Patients' Feelings Later in Confinement" consist of the individual patient's responses to the questions of what he liked and what he disliked about living in the hospital.

Selected Items from the Confinement Factors Questionnaire

What are some behaviors indicating stress in patients?

- Hospital a. Agitation, constantly asking for things, constantly seeking attention, touchy, irritable, pick fights, complain, nothing right, nobody 'cares' or is interested in them, he doesn't know what he is doing, temper tantrums, violent behavior, talk constantly, refuse treatment, overeat, restless nights, resistive to care, and similar complaints.
- Hospital b. Sudden perspiration, free tremors, pacing, stomp from foot to foot, follow personnel, patient will tell you.
- Hospital c. Fears, pacing, slapping of hands, arguing with other patients, refusing to eat, trying to open doors, moving furniture about and generally restless. Many patients have individual mannerisms that indicate stress such as pulling at a lock of hair or picking at their skin. There are many signs that one recognizes as they usually establish a pattern of behavior.
- Hospital d. Seclusiveness, hostility, belligerent, sarcastic.
- Hospital e. Nothing.
- Hospital f. Constant talking, loud talking, constant questions, walking up and down hall's, running, crying, restlessness.

What do patients do during their free time?

- a... Sleep - whenever they can - are allowed to lie down in day time with some restrictions. Watch TV - almost all patients watch TV - part of day. Play cards - many do not. Group singing - apt to be a few who repeat. Sit and talk - not general, but here and there. Read - usually only a few. Write letters - after first two weeks, a good many. After first two weeks more frequently wash clothes, iron - have hair done, or put own up in curlers - play ping pong (not many of women) - do puzzles.
- b. Sit, pace (If reading - too tense, can't concentrate or sit still, depressed, suicidals, elopers are pretty good.) Never leave the building - occupational therapy in basement.

Sit, daydream, watch, walk around, little reading or games - not care-stare at TV, not involved.
- c. Some patients would spend the most of their time in bed if permitted to do so. Some like puzzles, others like to write letters, watch television, exchange symptoms with fellow patients, others sit quietly about staring into space. It varies with the type and degree of their illness.
- d. Reading, sleep, sit on porch, TV.
- e. Nothing
- f. Just sit unless urged to participate in activities.

In general, how do patients feel about their food?

- a. Type served: dislikes; Amount: likes; Reason for complaint: manner in which food is prepared. Would gripe anyway. Can have more if they want.
- b. Type served: neutral; Amount: likes.

Type served: neutral; Amount: likes.
- c. Type served: likes; Amount: likes.
- d. Type served: likes; Amount: likes.

- e. Nothing.
- f. Type served: neutral; Amount: neutral.

How do patients show their feelings?

- a. Gripping about lack of attention from others, hammering pingpong ball against the wall, banging fists on wall, arguing with nurses and each other, refuse to eat, stand around and pout, walk up and down, gripe about pains, discomfort, food, anything.
- b. Tell you if it's really good, few complaints.
Tell you if it's really good, few complaints.
- c. Many express their feelings verbally.
- d. Talking, resentment, outward hostility, mood.
- e. Nothing.
- f. Just don't eat it if they dislike it.

May patients smoke?

- a. Yes; Restrictions: smoking 4 times a day.
- b. Yes; Restrictions: limited if burn themselves, dayroom, bathroom, halls.
Yes; Restrictions: limited if burn themselves, dayroom, bathroom, halls.
- c. Yes; Restrictions: they are not permitted to have matches on closed ward.
- d. Yes, approximately 1/2 to 3/4 of the pts.; Restrictions: lights given 7 AM - 8 PM.
- e. Yes; no Restrictions.
- f. Yes; Restrictions: no smoking in bedrooms and halls.

What personal belongings are allowed?

- a. Must be marked - usually do not have personal belongings for several days.
- b. Cigarettes, hankies, paper - on person.
Cigarettes, hankies, paper, pen, comb, shoe laces, belts - on person.
- c. Cosmetics, pictures, ward clothing, etc.
- d. Everything but potentially dangerous objects as razors, pocketknives.
- e. Clothing.
- f. Anything.

Where are these personal belongings kept?

- a. A bin is assigned - a bedside cabinet.
- b. Electric razor and toothbrush in cabinet.
Electric razor and toothbrush in cabinet.
- c. In bedside tables and locker rooms.
- d. Business office safe.
- e. Lockers.
- f. Some in bedside cabinet, lockers, some we keep in our luxury closets which are kept locked - key always on floor.

Do the ward quarters seem crowded with patients?

- a. Not now.
- b. Yes.
Overcrowded.
- c. No.
- d. At times when census is high.
- e. No.

- f. Only when all patients are on the unit. Most of my patients have ground privileges. (New patients, such as those in this study, do not have ground privileges.)

Would you consider the ward noisy during the daytime?

- a. Not too noisy.
b. Yes.
 Yes.
c. Ordinarily no.
d. Usually quiet after lunch.
e. No.
f. I

Would you consider the ward noisy at night?

- a. No, quiet.
b. No.
 No.
c. No.
d. No. Maybe at times.
e. No.
f. Yes - when everyone is on the unit.

Is there a particular noise or type of noise that bothers patients? Explain.

- a. No.
b. Other patients.
 Other patients.
c. Behavior of other patients if they are upset.

....d. Other patients.

....e. No.

....f. No.

List in order the three chief fears patients have.

....a. Most frequent: locked doors; next frequent: not being allowed to leave here; next frequent: ECT.

....b. Most frequent: being left alone; next frequent: not being loved; next frequent: no visitors.

Most frequent: being left alone; next frequent: not being loved; next frequent: no visitors.

....c. Most frequent: they will never get out; next frequent: fear of public opinion; next frequent: will they get sick again.

....d. Most frequent: being locked in and at a mental hospital; next frequent: what's happening at home; next frequent: being forgotten.

....e. Most frequent: ECT; next frequent: WSTP; next frequent: being transferred to block building.

....f. Most frequent: fear of being alone; next frequent: fear of not getting well; next frequent: fear of staying in hospital for a long time.

Is there anything that bothers you but apparently does not bother them?

....a. Crowded ward and work space.

....b. Lot of smoke.

Lot of smoke.

....c. Untidy wards.

....d. Yes

....e. The use of artificial light at all times.

List in order the three chief complaints patients make.

- a. Most frequent: can't go outside; next frequent: can't see doctors;
next frequent: not allowed enough clothing; not enough privacy.
- b. Most frequent: lack of privacy; next frequent: lack of quiet areas;
next frequent: not enough attention by personnel.

Most frequent: lack of privacy, next frequent: lack of quiet areas;
next frequent: not enough attention by personnel.
- c. Most frequent: getting up too early in the morning; next frequent:
having their clothing marked; next frequent: lack of privacy.
- d. Most frequent: does not see doctor enough; next frequent: wants to go
home.
- e. Most frequent: locked doors; next frequent: unable to see doctors;
next frequent: can't go outside.
- f. Most frequent: lack of privacy; next frequent: quiet place to read, next
frequent: lack of activities.

What first statements do you make to a new patient to welcome him (her) and to
help him (her) adjust to the new environment?

- a. Hello, nice to have you - hope you will be happy here - will try to help you.
- b. Greet by name and identify self, orient lives.

Greet by name and identify self, orient lives.
- c. Introduce oneself to patient, to other personnel and try to make him
welcome.
- d. Introduce myself.
- e. Introduce them.
- f. Welcome patients with a smile and tell them we are here to help them get
well - orient them to the physical set-up of unit.

When a new patient begins to show signs of stress or behavior that indicates trouble is ahead, what do you do?

- a. Call doctor and let him know, medication. Solitude if necessary.
- b. See if doctor is available, let doctor see him. If none, nurse does it, give RP.
See if doctor is available, let doctor see him. If none, nurse does it, give RP.
- c. When possible give the patient an opportunity to discuss whatever is bothering her.
- d. Notify doctor and talk to patient.
- e. Give medication.
- f. Have someone stay with them and see if you have prn order for medication; if not, get one.

When are your actions most helpful in preventing disturbed behavior?

- a. Reassuring them and showing them around - explain routine and make them feel welcome. Full acceptance as they are - patience - help them understand and accept regulations.
- b. When patient is in good contact.
When patient is in good contact.
- c. If the patient is in contact with reality. If not it is usually necessary to administer medication intramuscularly.
- d. Nothing
- e. Just being present.
- f. By accepting the patients the way they are. Helping them back to reality.

When are they not helpful?

- a. May sometimes be too permissive.
- b. When patient is out of contact.

- When patient is out of contact.
- c. When patients are hallucinated, suspicious and preoccupied.
- d. Nothing.
- e. Nothing.
- f. When patient does not trust you - or feels you are not believing him or not telling the truth.

Patients' Feelings Early in Confinement

Patient No. 1

The things I appreciate most about section four is it is quiet, not boisterous.

Things I dislike are (1) the patients are all middle-aged (or old, way above my age group) (2) lack of being able to occupy myself with something to do and that it becomes quite boring and difficult at times to just sit and stare at four walls. This can become very depressing and disturbing to a person who is used to being always active.

Patient No. 2

Patients are well taken care of; it's the proper policy and no doubt necessary to run a hospital. Close quarters bother me; I feel cooped up, need more room to move around. More comfortable seats.

Patient No. 31

What I dislike most is the patients - too many, too close to you - and being told what to do, and the food.

What I like best is the nurses are kind, the doctors are kind, and others are here to help you.

Patient No. 32

Being here and being sick (dislike).

Being helped (like).

Patient No. 33

What I dislike most is just sitting around. I also don't like to look at the actions of some of the people.

I like the nursing staff. I think the personnel have been very nice and understanding.

Patient No. 34

Food not so good (dislike).

Most people are nice so far (like).

Patient No. 35

I like best: The interior of rooms are in nice colors and aren't dark and gloomy. You have a certain amount of freedom and don't need to stay in one room. Certain amount of schedule-so you know about when you will be doing things.

I don't like: All ties of home are missing and no contact with outside world. No walks. The chance to spend free time doing the things you like best. No way to reach family and have them send the things you feel are part of necessity to live with.

Patient No. 36

Dislikes: The locked doors, the food, not enough recreation, no hobbies to pass time, nothing to hold interest.

Likes: the working personnel.

Patient No. 37

Dislikes: What I dislike most about being here is that I can't wear my wedding ring and that I have to be around the patients that are crippled and the ones that can become violent.

Like: Having meals at a regular time and getting up and going to bed at a regular time. The nurses and doctors are friendly and understanding.

Patient No. 38

It's hard to say which I dislike most as I've only been here a few hours. But I was annoyed when they took my wedding ring away, and I think if chairs and benches were put in conversational groupings instead of lined against the wall it would seem less like an institution. I also mind not seeing my husband for 10 days and the children.

The scenery I like immensely and the fact that music is available.

Patient No. 39

The fact that I can't see my children, husband and friends.

The doctors, nurses and people are friendly.

Patient No. 40

Dislike: Not being with my husband, cigarette restrictions, the feeling of not being trusted as if I'm dangerous,

Like: having a good rest, having people to take care of me, and talk to me.

Patient No. 41

Dislike: Well, the old men. I don't think I should be here long, nobody to talk to. Not enough good chairs to sit on, because of my back. And my bed is no good because of my back. I haven't slept good since I have been here. The food isn't too bad, it could be better. I would like to go to church, and get out and get some fresh air, once in a while.

Like: Well, it gives you a chance to rest a lot but I would like to take it or not. I have made up my mind that I will be here for a little time, so this I will take as it comes.

Patient No. 42

Dislike: Reason I'm here, having to eat here, poor beds, I am not being helped, ruin my reputation. I think I was sent here out of personal dislike of a doctor. I am scared to death.

Like: Very educational talking to different types of people.

Patient No. 43

Dislike: 1. Not having my own things.
2. Eating with patients who can't help themselves and mess in their food.

3. Not being able to smoke when I want to.

Like: 1. Nurses and students are helpful and friendly.

Patient No. 44

Dislike: Being away from home. Might as well be in jail, just the same, in line for food - same as in service.

Like: Nothing I can think of.

Patient No. 45

Dislike Most. Not being with my children and family. Not leading my own life. Not being able to take care of my home. Not being entirely free. I miss the closeness of home and family. Not being with my close friends and family.

Like: They treat you nice. Playing cards. Talking to new people. I know they are trying to help me.

Patient No. 46

Dislike: Not enough to do. Taking showers with everybody.

Like: The nurses are all friendly. Some of the people are easy to talk to.

Patient No. 61

I don't like: Having everything taken away from you. I don't like feeling useless. Would like to do something to occupy time. I feel like I'm being treated like a 2-year-old. They make me feel like a child, like I haven't the mentality to think and act as an adult. I know I can handle responsibilities and feel like I should be able to prove myself. Right now I don't feel like they have very much confidence in me as an adult. I feel I can handle myself and would like to be given a chance to prove myself to them. I want to be helpful, I don't want to feel like I have to depend on them for everything.

I do like the nurses. They try to be very helpful and they are very patient with all the girls which must be hard sometimes for them. I certainly try to cooperate with them because they are so understanding and everyone tries to be friendly and they are very helpful.

Patient No. 62

The things I like about the ward: 1. meeting different personalities.

The things I dislike about the ward: 1. the routine 2. no private baths
3. the odors 4. the prison restrictions.

Patient No. 63

To start off, I don't feel that I need to be kept here in medical-surgical ward any longer. If I am willing to stand the pain of walking around, I feel I should be transferred to my regular ward where my regular treatments can begin.

The one thing that bothers me most here in medical-surgical is the constant association with people who are in pretty bad shape. To have to look at them lowers my morale as they seem to be at a complete loss of their mental facilities and I am forced to watch them.

I guess my main like is to be able to watch television.

Patient No. 64

Nothing.

Patient No. 91

Dislike most: A lot of examinations and stuff like that. Kind of people here, mental patients, is depressing. It's a new experience and I'm a little nervous about it.

Patient No. 121

Things I dislike most about the ward: Regimentation, no being able to use telephone enough to conduct personal business and other affairs.

Things I like the most about the ward: The efficient and quick manner in which things are done, and how thoroughly these things are performed also.

Patient No. 122

Nothing.

Patient No. 123

Nothing.

Patient No. 124

Nothing.

Patient No. 125

Nothing.

Patient No. 126

The ward is very well controlled, as far as I have seen at this point. So far any small requests I have made for my help have been taken care of by the personnel in this ward. I know it is hard to please everyone. I'm here at this hospital, by my request for all the help I can receive. I want to go home a "well man".

The personnel are outstanding in this ward. That is all I can say at this time. With God's help and the personnel here I'll make it.

Patient No. 127

Nothing.

Patient No. 211

Nothing.

Patient No. 212

Like - nurses

Dislike - being closed in hospital

Patient No. 213

Like: recreation room.

Dislike: means of taking bath; can't see where there'd be much privacy.

Patient No. 214

The things I like about the ward are the kindness of the nurses and doctors and patients.

The dislikes are - too confined - not decorated - not being able to take walks and visit with someone and talk, can't go out in the public and watch others enjoying life.

Patient No. 215

Nothing.

Patients' Feelings Later in Confinement

Patient No. 1

The only thing I can find fault with is the main complaint as before not enough to do to occupy my time. At times becomes boring or depressing, otherwise I don't mind it, its just what you make it then.

Patient No. 2

Don't like the beds, too close and pretty hard. Like fact that company's around even though they do disturb your sleep.

Patient No. 31

Like: Very little if anything.

Dislike: Loss of wedding ring, going to bed at a certain time, food in cafeteria, belligerence of some of the patients.

Patient No. 32

Like. Nurses, doctors, assistants.

Dislike: Myself, towels, speech.

Patient No. 33

I dislike most not being able to smoke as often as I would like and there is not enough to do.

What I like the most are the personnel. Everyone seems to take an interest in everyone.

Patient No. 34

Interested people, going to bed is good, free hair cuts.

Food, getting up early.

Patient No. 35

Nothing.

Patient No. 36

Dislikes: Being locked in, bedrooms being locked during day, not enough recreation, not enough freedom, not given enough therapy or attention by doctor, being confined with patients I don't think belong here, not being trusted with silver ware.

Likes: meals, cafeteria, congeniality of some patients, personnel, church, Bible study.

Patient No. 37

Dislike: That I can't go outside and go where I please and use a telephone to call my husband.

Like: The friendliness of the nurses and helpfulness of some patients.

Patient No. 38

Dislike: Being away from my husband and children.

Like: The view is pleasant. Music is available. And have found a few girl bridge players.

Patient No. 39

Dislike: Uncertainty about when I'm going home. Miss my husband and children.

Like: The doctors and nurses superb. Talking to psychologists very helpful.

Patient No. 40

Dislike: Not being with my husband and children. Not free to smoke when I want to, its more like prison than a hospital.

Like: meals, getting my rest.

Patient No. 41

Don't like: Not being able to sleep at night, and the beds are hard on my back. I would like to go outside and get some fresh air and can't.

Like: Well it's quiet, I like that, the food isn't so bad anymore. The people that help to keep us good fellows.

Patient No. 42

Dislike: Not being able to talk to friends, not having my own clothes and make-up, being tired during the day, can't sleep soundly at nights.

Like: You can discuss your problems with psychologist nurses, and social workers. They seem to understand. This hospital helps me to thank God for the condition my own body is in.

Patient No. 43

Nothing.

Patient No. 44

Dislike: Lock doors - the food (saucer brunt, stuff like that) - going outside - smoking rules.

Patient No. 45

Like: 1. Making new friends. 2. They treat you nice here. 3. Knowing I'm going to be helped. 4. Solving my problems.

Dislike: 1. Can't see my children. 2. Miss my home and parents.
3. Miss my freedom. 4. Want to finish school and can't while I'm here.

Patient No. 46

Dislike: 1. No privacy in bathroom. 2. Sometimes rather overcrowded.

Like: 1. The nurses seem nice and willing to be friendly. 2. Food is plentiful, almost too much is served.

Patient No. 61

Nothing.

Patient No. 62

What I dislike about the ward: 1. Not seeing your doctor often or long enough. 2. Ward odors. 3. Not being able to sleep soundly. 4. The mixture of severe and mild mental disorders.

What I like about the ward: 1. Meeting different personalities. 2. The food. 3. The helpful attendants and nurses. 4. The whole place in general is wonderful for recuperating.

Patient No. 63.

The thing I like most about this ward is being able to read, sleep, smoke, or watch television when I want to.

The thing that I dislike the most is the other patients with whom I am forced to see and associate with.

Patient No. 64

Nothing.

Patient No. 91

Dislike most: Nothing wrong with it. Nothing about it bothers me. Nothing at all I dislike. Physical inactivity does bother me - that's all.

Like most: Like the idea that everybody gets together for dinner. I like to think that I'm helping out with the others. Number of books that I can read. Nice dining room - come in contact with a few people like real well.

Patient No. 121

Things I dislike most about the ward: 1. Not enough freedom to telephone for personal calls and business calls. 2. Regimentation -- too much red tape with most matters. That this is a locked ward.

Things I like the most about the ward. Good system in getting things done from a medical and psychological standpoint. The discipline methods used by nurses and aides on the ward, and the efficiency it brings forth.

Patient No. 122

Nothing.

Patient No. 123

Nothing.

Patient No. 124

Dislike: Too much noise at bedtime, patients bang doors and scrape chairs too often, chairs uncomfortable (may be medicine), not enough physical activity to keep weight down.

Like: Routine and hours -- personnel and nurses.

Patient No. 125

Nothing.

Patient No. 126

The ward is run as well as it can be with the patients coming through as fast as I have seen this last week.

There are lots of things that can and will be done to make this place better. More control over patients on pass, a place for the old men to be on a farm not in a hospital.

Patient No. 127

Nothing.

Patient No. 211

Worst: Having to give up my glasses at bed time. The hard chairs.

Best: The nurses and doctors, food, the patients.

Patient No. 212

I do not like showing in public - like everything else.

Patient No. 213

I don't like the toilet, it's too open.

I like the way the nurses treated me.

Patient No. 214

The dislikes - The confinement, not having freedom to go outside, and no decorating. Too dim and dull.

Likes - Kindness of nurses and doctors, being able to help others.

Patient No. 215

Dislike: Some of the rules, can't go out, certain times for things.

Like Nurses are nice.

APPENDIX D

NURSE'S OBSERVATION SCALE FOR IN-PATIENT EVALUATION

PATIENT'S NAME _____ CODE _____

NURSE _____ DATE _____

DIRECTIONS

On the following pages you are asked to rate the behavior of this patient. There are 74 items, which cover a wide range of activities. For the first rating, base your judgements on the patient's behavior since he (she) came on the ward. For all other ratings, judgments are to be based on the period since the previous rating. For each item you are to estimate whether during the rating period the description of the patient's behavior was true:

1. Never
2. Sometimes
3. Often
4. Usually
5. Always

Indicate your choice by placing a circle around the correct number before each item.

Never
Sometimes
Often
Usually
Always

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

57. Shows inappropriate feeling or lack of feeling.

58. Makes sarcastic remarks.

59. Reads newspapers or magazines.

60. Has to be reminded what to do.

61. Sleeps, unless directed into activity.

62. Says that he is no good.

63. Has to be told to follow hospital routine.

64. Seems to enjoy life.

65. Pays attention when spoken to.

66. Washes himself.

67. Has difficulty completing even simple tasks of his own.

68. Is alert and attentive.

69. Talks about his family.

70. Talks, mutters, or mumbles to himself.

71. Appears confused or puzzled.

72. Is slow moving and sluggish.

73. Quick to fly off the handle.

74. Keeps himself neat and clean.

APPENDIX E NOSIE SCORING

74 Item Version - Scored 1 to 5

Subject _____ Code _____ Date _____

Rater _____ Position of Rater _____

NOTE: Items marked with asterisk (*) receive reflected scores:

1=5 2=4 3=3 4=2 5=1

SOCIAL COMPETENCE (COM) 22 _____ 66 _____ 60* _____ 42 _____ 26 _____ 63* _____ 53 _____ 41 _____ 67* _____			SOCIAL INTEREST (INT) 11 _____ 21 _____ 44 _____ 59* _____ 13 _____ 27 _____ 45 _____ 64 _____ 16 _____ 30 _____ 46 _____ 68 _____ 17 _____ 31 _____ 54 _____ 4* _____ 18 _____ 35 _____ 55 _____ 25* _____ 20 _____ 37 _____ 56 _____ 50* _____ 72* _____		
COOPERATION (COO) 14 _____ 23 _____ 39* _____ 15 _____ 46 _____ 67* _____ 19 _____ 65 _____			PERSONAL INTEREST (NEA) 34 _____ 74 _____ 1* _____ 50* _____		
IRRITABILITY (IRR) 2 _____ 28 _____ 73 _____ 7 _____ 36 _____ 12* _____ 8 _____ 38 _____ 33* _____ 9 _____ 40 _____			MANIFEST PSYCHOSIS (PSY) 70 _____ 71 _____		
MISCELLANEOUS 10 _____ 48 _____ 58 _____ 29 _____ 49 _____ 59 _____			PARANOID DEPRESSION (DEF) 3 _____ 6 _____ 52 _____ 5 _____ 47 _____ 62 _____		

APPENDIX F
SELF DESCRIPTION I (LEARY)

SELF-DESCRIPTION

On the next two pages are lists of descriptive words and phrases which you will use in describing yourself.

Read the items quickly and fill in the circle in front of each item you consider to be descriptive of yourself at the present time. Leave the circle blank if an item does not describe you.

In the example below, the person has shown that Item A describes him and Item B does not describe him.

Item

A ☒ well-behaved

B ☐ suspicious

Your first impression is generally the best so work quickly and don't be concerned about duplications, contradictions, or being exact. Mark the items according to the way you feel today. Do the COLUMNS in order starting with COLUMN 1.

SUBJECT: _____

DATE: _____

COLUMN 1

COLUMN 2

- P ☐ well thought of
- P ☐ makes a good impression
- A ☐ able to give orders
- A ☐ forceful
- B ☐ self-respecting
- P ☐ independent
- C ☐ able to take care of self
- C ☐ can be indifferent to others
- D ☐ can be strict if necessary
- D ☐ firm but just
- E ☐ can be frank and honest
- E ☐ critical of others
- F ☐ can complain if necessary
- F ☐ often gloomy
- G ☐ able to doubt others
- G ☐ frequently disappointed
- H ☐ able to criticize self
- H ☐ apologetic
- I ☐ can be obedient
- I ☐ usually gives in
- J ☐ grateful
- J ☐ admires and imitates others
- K ☐ appreciative
- K ☐ very anxious to be approved of
- L ☐ cooperative
- L ☐ eager to get along with others
- M ☐ friendly
- M ☐ affectionate and understanding
- N ☐ considerate
- N ☐ encourages others
- O ☐ helpful
- O ☐ big-hearted and unselfish

- ☐ often admired
- ☐ respected by others
- ☐ good leader
- ☐ likes responsibility
- ☐ self-confident
- ☐ self-reliant and assertive
- ☐ business-like
- ☐ likes to compete with others
- ☐ hard-boiled when necessary
- ☐ stern but fair
- ☐ irritable
- ☐ straightforward and direct
- ☐ resents being bossed
- ☐ skeptical
- ☐ hard to impress
- ☐ touchy and easily hurt
- ☐ easily embarrassed
- ☐ lacks self-confidence
- ☐ easily led
- ☐ modest
- ☐ often helped by others
- ☐ very respectful to authority
- ☐ accepts advice readily
- ☐ trusting and eager to please
- ☐ always pleasant and agreeable
- ☐ wants everyone to like him
- ☐ sociable and neighborly
- ☐ warm
- ☐ kind and reassuring
- ☐ tender and soft-hearted
- ☐ enjoys taking care of others
- ☐ gives freely of self

SUBJECT: _____

DATE: _____

COLUMN 3

COLUMN 4

- | | | |
|---|--|--|
| P | ☐ always giving advice | ☐ tries to be too successful |
| P | ☐ acts important | ☐ expects everyone to admire him |
| A | ☐ bossy | ☐ manages others |
| A | ☐ dominating | ☐ dictatorial |
| B | ☐ boastful | ☐ somewhat snobbish |
| B | ☐ proud and self-satisfied | ☐ egotistical and conceited |
| C | ☐ thinks only of himself | ☐ selfish |
| C | ☐ shrewd and calculating | ☐ cold and unfeeling |
| D | ☐ impatient with others' mistakes | ☐ sarcastic |
| D | ☐ self-seeking | ☐ cruel and unkind |
| E | ☐ outspoken | ☐ frequently angry |
| E | ☐ often unfriendly | ☐ hard-hearted |
| F | ☐ bitter | ☐ resentful |
| F | ☐ complaining | ☐ rebels against everything |
| G | ☐ jealous | ☐ stubborn |
| G | ☐ slow to forgive a wrong | ☐ distrusts everybody |
| H | ☐ self-punishing | ☐ timid |
| H | ☐ shy | ☐ always ashamed of self |
| I | ☐ passive and unaggressive | ☐ obeys too willingly |
| I | ☐ meek | ☐ spineless |
| J | ☐ dependent | ☐ hardly ever talks back |
| J | ☐ wants to be led | ☐ clinging vine |
| K | ☐ lets others make decisions | ☐ likes to be taken care of |
| K | ☐ easily fooled | ☐ will believe anyone |
| L | ☐ too easily influenced by friends | ☐ wants everyone's love |
| L | ☐ will confide in anyone | ☐ agrees with everyone |
| | ☐ fond of everyone | ☐ friendly all the time |
| M | ☐ likes everybody | ☐ loves everyone |
| N | ☐ forgives anything | ☐ too lenient with others |
| N | ☐ oversympathetic | ☐ tries to comfort everyone |
| O | ☐ generous to a fault | ☐ too willing to give to others |
| O | ☐ overprotective of others | ☐ spoils people with kindness |

APPENDIX G

SELF-DESCRIPTION SCALE - I

SUBJECT _____

HOSPITAL _____

Testing No. _____

SCORE		D = .7(BC+NO)+AP	S = .7(FG+JK)+HI	DERIVED SCORES	
AP					
BC				SUBMISSION	
DE				LOVE	
FG				HOSTILITY	
HI		L = .7(JK+NO)+LM	H = .7(BC+FG)+DE	DOM	
JK				LOV	
LM		DOM = D-S		LOV = L-H	
NO					

Testing No. _____

SCORE		D = .7(BC+NO)+AP	S = .7(FG+JK)+HI	DERIVED SCORES	
AP					
BC				SUBMISSION	
DE				LOVE	
FG				HOSTILITY	
HI		L = .7(JK+NO)+LM	H = .7(BC+FG)+DE	DOM	
JK				LOV	
LM		DOM = D-S		LOV = L-H	
NO					

Testing No. _____

SCORE		D = .7(BC+NO)+AP	S = .7(FG+JK)+HI	DERIVED SCORES	
AP					
BC				SUBMISSION	
DE				LOVE	
FG				HOSTILITY	
HI		L = .7(JK+NO)+LM	H = .7(BC+FG)+DE	DOM	
JK				LOV	
LM		DOM = D-S		LOV = L-H	
NO					

APPENDIX H
TAT SCORING GUIDE

A. Objective Analysis - Emotional Tone

<u>Rating Scale</u>	
<u>Value</u>	<u>Description</u>
-2	<u>Complete failure</u> , submission to fate, death, murder, suicide, illicit sex with violence, revenge, aggressive hostility, severe guilt, complete hopelessness, severe conflict.
-1	<u>Conflict with attempt to adjustment</u> , rebellion, fear, worry, departure, regret, illness, physical exhaustion, resignation toward death, in jail, loneliness, grief, tension.
0	<u>Description, lack of affect</u> , balance of positive and negative feelings, routine activities, impersonal reflection.
+1	<u>Aspiration</u> , desire for success and doubt about outcome, compensation for limited endowment. Description with cheerful feeling, reunion with friends, contentment with world, feeling of security.
+2	Justifiably <u>high aspiration</u> . Complete aspiration. Complete satisfaction and happiness. Reunion with loved ones.

B. Objective Analysis - Outcome of Stories

<u>Rating Scale</u>	
<u>Value</u>	<u>Description</u>
-3	<u>Complete failure</u> , submission to fate, death, murder, suicide, extreme punishment, extreme remorse.
-2	<u>Some failure</u> , upset, disturbed, punished, subjected.
-1	<u>Some frustration</u> , incomplete success in attaining goal, goal attained at expense of happiness, disappointment to friends and family, acceptance of unsatisfactory situation, submission to authority.

- B. Objective Analysis - Outcome of Stories (Continued)
- 0 Continuation of ordinary situation, balance of happy and unhappy situations.
- +1 Moderate success, reunion with friends, happiness in success of others, recovery from temporary disability or depression, tolerable resolution of conflict.
- +2 Success, everything turns out fine (no indication of conflict).
- +3 Great success, discovery, and/or happiness. Extreme contentment, marital bliss, unusual good fortune, reunion with loved ones.

C. Interpersonal Behavior Classification by Codes.

<u>Code</u>	<u>Description</u>
A	The code "A" is assigned to themes of <u>Power</u> : Leadership, Command, Direction, Authority.
B	Assigned to themes of <u>Narcissism</u> : Independence, Self-expression, Power Struggle.
C	Assigned to themes of <u>Exploitation</u> : Seduction, Rape, Rejection, Depriving, Selfishness, Keeping away from, Keeping children to self.
D	Assigned to themes of <u>Punitive Hostility</u> : Punishment, Coercion, Brutality, Quarreling, Threat, Sarcasm, Arrest.
E	Assigned to themes for <u>All Forms of Pure Hostility</u> : Disaffiliation, Murder, Anger, Fighting, Criticism, Grabbed.
F	Assigned to themes of <u>Unconventional Activity</u> : Passive Resistance, Rebellion, Generic Crimes vs. Authority, Pure Jealousy, Drunkenness, Stealing covertly, Offended, Bitterness.
G	Assigned to themes of <u>Deprivation</u> : Frustration, Distrust, Disappointment, Rejectedness, Suspicion, Bad things are done to one.
H	Assigned to themes of <u>Masochism</u> : Grief, Suicide, Withdrawal, Guilt, Provoking Punishment, Self-Punishment, Fear, Anxiety, Insanity (unspecified), Loneliness, Running away.

C. Interpersonal Behavior Classification by Codes. (Continued)

- I Assigned to themes of Weakness. Obedience, Submission, Dependence, Exhanded, Unconsciousness, Indecision, Ambivalence, Immobilization, Illness, Passivity, Succorovic, Perplexity.
- J Assigned to themes of Conformity. Accepting advice, Provoking advice, Being a Student, Docility, Followership, Positive Passivity.
- K Assigned to themes of Trust: Cling, Good things come to one, Good Luck, Being taken care of, Dreaming, Dependence, Gratitude.
- L Assigned to themes of Collaboration and Agreeability: Congeniality, Cooperation, "Generic happy ending" caused by people working things out, Adjustment in general.
- M Assigned to themes of All Forms of Pure Love: Affiliation, Marriage, Friendship.
- N Assigned to themes of Tenderness: Support, Kindness, Encouragement, Solace, Pity.
- O Assigned to themes of Generosity: Help, Curing Someone, Taking care of someone, Giving, Nurturant.
- P Assigned to themes of Success: Heroism, Popularity, Acclaim, Achievement, Wisdom, Teaching, Explaining.
- D. Check List of Themes. (The entire ten pages of the check list are not reproduced here. They may be secured from the authors. See page 44 for outline.)

I. Disequilibrium (tension)

A. Interpersonal

1. Parent or parent figure

- a. Pressure - parent or parent figures are prohibitive, compelling, censoring, punishing, disapproving, interfering, checking up, disagreeing with, quarreling with, restraining or unduly influencing child. Anger.
- aa. Child is exerting pressure on parents.

-
- b. Succorance - child seeks or received aid, help, advice, consolation from parent or parent figure.
 - c. Nurturance - child bestows or offers aid, advice, consolation to the parent.
 - d. Aggression from - physical harm inflicted or intended upon child by parent.
 - e. Aggression to - physical harm inflicted or intended upon parent by child.
 - f. Departure - child is taking leave of parental home, runs away from home.
 - g. Concern - parent is worried over physical or mental well-being of child.

Scoring Guides A, B, and D are adapted from those presented by L. D. Eron and F. Ault, Jr. of the Bureau of Medicine and Surgery, Navy Department, and found in Appendices 1, 2, and 3 of "A Study of the Thematic Apperception Test Stories and Sentence Completions of Subjects in Operation Hideout" (4 February 1954).

Scoring Guide C is adapted from Table 5, page 18, of T. Leary's "Multilevel Measurement of Interpersonal Behavior," (1956).

APPENDIX I

CONFINEMENT ACCEPTANCE SCALE:
SELF-DESCRIPTION SCALE II

Listed below are some statements referring to aspects of the ward and ward life. These aspects may bother people living in the ward. We would like to know how you feel about them. You can tell us by circling the number in front of each statement which best describes how you feel about the ward aspect described in that statement. If the statement is not applicable to you, then draw a line through all the numbers.

The person marking the examples below has indicated that he is always bothered by the ward doors being locked, that he is sometimes bothered by having to remain on the ward and in his hospital, and that the last statement does not apply to him.

Examples:

① Always	2 Often	3 Sometimes	4 Rarely	5 Never	
①	2	3	4	5	Ward doors being locked.
1	2	③	4	5	Having to remain on the ward.
~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	The mail is censored.

Circle the number according to the way you feel today. Your first impression is generally the best, so read the statement quickly and circle the appropriate number.

When you have finished indicating how you feel about the statement, list on the back of the booklet the things you dislike most about the ward and the things you like the most.

Always	Often	Sometimes	Rarely	Never	
1	2	3	4	5	Ward doors being locked.
1	2	3	4	5	Can't make own decisions.
1	2	3	4	5	Must live in close contact with others.
1	2	3	4	5	Not being allowed to wear my own clothing.
1	2	3	4	5	Having to give up my previous work schedule.
1	2	3	4	5	Not allowed to see my family as often as I wish.
1	2	3	4	5	Not being allowed to supervise previous employees.
1	2	3	4	5	Uncertainty of ward rules and procedures.
1	2	3	4	5	No seats on the toilets.
1	2	3	4	5	Not having my own razor.
1	2	3	4	5	No one to confide in.
1	2	3	4	5	Can't supervise my children.
1	2	3	4	5	Not knowing what drugs and treatment I will get.
1	2	3	4	5	Uncertain what will happen when I leave the hospital.
1	2	3	4	5	Having to remain on the ward.
1	2	3	4	5	Cannot leave the ward when I want to.
1	2	3	4	5	No privacy.
1	2	3	4	5	Can't be alone with visitors.
1	2	3	4	5	Having to give up most of my personal belongings.
1	2	3	4	5	Can no longer participate in some of my favorite recreations.
1	2	3	4	5	Sexual outlets have been lost.
1	2	3	4	5	Not being allowed to act as a breadwinner or housewife.
1	2	3	4	5	Unfamiliar surroundings.
1	2	3	4	5	Not sleeping in my own bed.
1	2	3	4	5	Cannot have bull sessions with old friends.
1	2	3	4	5	Rooms and corridors are small and close.
1	2	3	4	5	Being in the hospital for a long time.
1	2	3	4	5	Not knowing what to do to get discharged soon.

1	2	3	4	5
Always	Often	Sometimes	Rarely	Never

1	2	3	4	5
---	---	---	---	---

No choice in determining the people who share the ward.

1	2	3	4	5
---	---	---	---	---

Not having my make-up.

1	2	3	4	5
---	---	---	---	---

Must dress in presence of others.

1	2	3	4	5
---	---	---	---	---

Uncertain how to behave while on the ward.

1	2	3	4	5
---	---	---	---	---

Not having all my personal jewelery (rings, pins, etc.).

1	2	3	4	5
---	---	---	---	---

Can't go shopping down town.

1	2	3	4	5
---	---	---	---	---

Must be accompanied outside by hospital personnel.

1	2	3	4	5
---	---	---	---	---

Not enough choice of recreational activities

1	2	3	4	5
---	---	---	---	---

Illnesses of other patients.

1	2	3	4	5
---	---	---	---	---

The mail is censored.

1	2	3	4	5
---	---	---	---	---

The way other patients are treated by hospital personnel.

1	2	3	4	5
---	---	---	---	---

Difficult to learn what my old friends and family are doing.

1	2	3	4	5
---	---	---	---	---

Not being allowed to take showers whenever I wish.

1	2	3	4	5
---	---	---	---	---

Ward odors.

1	2	3	4	5
---	---	---	---	---

Having to eat at a certain time.

1	2	3	4	5
---	---	---	---	---

The ward seems drab and colorless.

1	2	3	4	5
---	---	---	---	---

Having to maintain a set schedule.

1	2	3	4	5
---	---	---	---	---

No colorful drapes, rugs, etc.

1	2	3	4	5
---	---	---	---	---

Ward restricts physical activity.

1	2	3	4	5
---	---	---	---	---

Not enough to do to fill my time.

1	2	3	4	5
---	---	---	---	---

Cannot snack when I choose.

APPENDIX J

MASTER SCORING SHEET

SELF-DESCRIPTION SCALE - II

SUBJECT _____

HOSPITAL _____

TESTING NO. _____

A	I
A ₁	
A ₂	
A ₃	
A ₄	
A ₅	
A ₆	
A ₇	
A ₈	
A ₉	
A ₁₀	
A ₁₁	
A ₁₂	

B	II
B ₁	
B ₂	
B ₃	
B ₄	
B ₅	
B ₆	
B ₇	
B ₈	
B ₉	
B ₁₀	
B ₁₁	

C	III
C ₁	
C ₂	
C ₃	
C ₄	
C ₅	
C ₆	
C ₇	
C ₈	
C ₉	
C ₁₀	

D	IV
D ₁	
D ₂	
D ₃	
D ₄	
D ₅	
D ₆	
D ₇	
D ₈	
D ₉	
D ₁₀	

E	V
E ₁	
E ₂	
E ₃	
E ₄	
E ₅	
E ₆	
E ₇	
E ₈	

F	VI
F ₁	
F ₂	
F ₃	
F ₄	
F ₅	
F ₆	
F ₇	
F ₈	
F ₉	

G	VII
G ₁	
G ₂	
G ₃	
G ₄	
G ₅	
G ₆	
G ₇	
G ₈	

H	VIII
H ₁	
H ₂	
H ₃	
H ₄	
H ₅	
H ₆	
H ₇	
H ₈	
H ₉	
H ₁₀	
H ₁₁	

APPENDIX

Scoring Key

Physical Confinement	Psychological Confinement	Lack of Privacy	Lack of Physical Supports
1	2	3	4
15	16	17	10
29	26	18	19
36	30	31	23
39	40	32	24
49	48	41	37
58	50	42	47
64	59	51	57
65	66	52	60
73	74	61	63
75	76		
77			
Lack of Familiar Behavior Patterns	Lack of Interpersonal Relationships	Loss of Identity	Fears
5	6	7	8
9	11	12	13
20	21	22	14
33	25	35	27
43	34	45	28
71	38	53	46
78	44	55	56
99	54	68	62
	70		67
			69
			72

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13 ABSTRACT This project, supported by the Office of Civil Defense, developed a psychological model of protective shelter and methods for identifying and describing the psychological stresses and supports existing during ensHELTERment. The admission wards of selected psychiatric hospitals were used as an analogue to the shelter confinement with subjects rigorously selected to insure valid extrapolation of results to the projected shelter occupancy population. Emphasis was placed upon studying the psychological rather than the physical environment. The approach utilized a literature collation covering the clinical as well as the traditional stress research in order to define and describe the psychological processes occurring within the shelter. Selected projective techniques, a ward behavior rating form, and an inhouse developed self-rating form provided data for ordering the psychological processes under investigation in terms of probability of occurrence and importance of resulting behavior. These data also provided a base for validating comparisons with data from existing occupancy studies. Efforts were expended to develop methods and techniques for use in future occupancy studies designed to close existing gaps in ensHELTERment knowledge. A set of diagnostic tools was developed for use by the shelter manager. A two-man game was constructed and pretested as a screening device for shelter manager use. A set of probable behaviors related to the results obtained from the above were provided as well as a set of remedial actions to be taken by the shelter manager.			

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PSYCHO-SOCIAL PROBLEMS OF SHELTER OCCUPANCY

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