THE EFFECTS OF THE INDUSTRIAL ENVIRONMENT ON MENTAL HEALTH

WORKING PAPER 1

An Preliminary Report by the Intercenter Research Program
on Mental Health in Industry

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Chapter I

INTRODUCTION AND BASIC ORIENTATION

In December, 1957, the National Institute of Mental Health provided a grant to the Institute for Social Research for the purpose of establishing a Program of Research on Mental Health in Industry. This is to be a long-range, integrated effort combining the facilities and experiences of the Survey Research Center and the Research Center for Group Dynamics. The initial grant was aimed at general planning and program development, at a review of the literature relevant to industrial mental health, and at a summary of the research conducted by the Institute for Social Research over the years which has contributed to our understanding of the effects of the industrial environment on the mental health of persons living and working therein. Specific empirical research projects were intentionally delayed for a year or more in keeping with the notion that a rich and fruitful understanding of the effects of the industrial environment on mental health could best be developed through programmatic research. It was further believed that such research should be based on a sound understanding of the conditions of that field at the present, on a broad and well-formulated theoretical approach, and on a preplanned strategy of research providing for the selection and design of projects to get at the most basic problems in the field with the greatest likelihood of significant payoff.

This document is an interim report on this program as it stands one year after its inception. The purpose of this report is to state the objectives and conception of the program as a whole (Chapter I), to lay the
necessary conceptual groundwork with respect to mental health, the industrial environment, and personality (Chapters II, III, and IV), to demarcate and delineate some major problems of the program and to further develop the theory and possible research designs for a few early projects (Chapter V). In addition, this report includes a summary of findings from various ISR research projects over the last ten years which have a bearing on mental health (Appendix A).

This has been termed a "working paper," indicating that progress toward our eventual objectives is under way but incomplete. It is perhaps appropriate to indicate here where we stand as of now. The definition of the purposes of the program and its scope and coverage is fairly complete. The conceptual framework is very schematic and incomplete, spelling out directions for rigorous conceptual development which is as yet to be accomplished. We will continuously revise and add to our theoretical conception of the field on the basis of further reading, logical and conceptual analysis, and eventually empirical findings, our own and others. This theoretical development should lead to theoretical publications, possibly a book. The potential project areas sketched out in Chapter V will be further refined theoretically and made more operational in forthcoming project proposals. The latter will probably represent the bulk of our initial empirical efforts in industrial mental health.

Much of the past work of the Institute, while being designed primarily for other purposes, has produced findings of use to the mental health field, many of which have never been published nor made available collectively. Appendix A is therefore a first draft of a publication, probably a journal article, which should be of some use to other mental health workers, both researchers and practitioners.
As an interim report this document is not for publication. It is primarily a working document for members of the program staff. In addition it should serve to indicate to the program monitors at the National Institute of Mental Health the state of our progress and the intended directions for development. Limited distribution within the Institute for Social Research and among other interested researchers is appropriate to the extent that it is in keeping with and supportive of the major aims and objectives of the program. Communication to a wider and more general audience must come through later publications. At the present time only Appendix A is aimed at a general audience and is the only part of this report for which there are any publication plans.

Aims and Purposes of the Research Program on Mental Health in Industry

The primary objective of this program is the development of knowledge and theory of the etiology of mental health and disorder, with particular attention to factors generated in the industrial environment.

In many fields of practical and theoretical endeavor, there is more and more concern with the intense and ubiquitous impact of our complex industrial society on the individual. This is a matter of vital interest not only for scholars in the social sciences and philosophy, but also for administrators in industry, government, and community welfare agencies. Researchers and practitioners in medicine and psychiatry are now turning, with serious interest, to the problems created for the person by virtue of the pressures and tensions of modern life. But there has been a paucity, thus far, of systematic empirical research to provide an understanding of
the underlying causes of such problems and to give direction to efforts at successfully coping with them on any but a very limited scale. This program represents an environmental approach to mental health in industry, and can be considered as complementary to (and in some respects in contrast to) the more usual approaches of individual counseling and therapy. Although biological factors and early developmental factors in personality are recognized as important determinants of, and may account for much of the variance of, mental health or ill health, environmental factors, particularly of the adult, have been neglected for the most part. We will seek to determine what aspects of the industrial environment influence mental health. The industrial environment, and the experience of working in it, will be viewed both positively and negatively. That is, we will attempt to identify the environmental pressures and conflicts which interfere with mental health, the environmental resources which are supportive of mental health, and the various kinds of job experiences which may serve as a kind of "occupational therapy" which may improve mental health. Viewing both the negative and positive environmental factors seems useful in trying to discover the possible changes in industry which might constitute a program of preventive mental hygiene.

In addition to, and in support of, this general objective, there are a number of subsidiary and strategic goals of the program which are worthy of mention at this time. Some of them point to ways in which this program is grounded in past and present developments in other related fields. Some of them indicate expected by-products of practical or theoretical value to this and other fields. But in all cases, they are subservient to the major aim of enhancing our understanding, through the development of explanatory theory, of the determinants of good or poor mental health.
1. Bring together, and make available through publications, the research findings of the Institute for Social Research which are relevant to mental health. A substantial amount of such research has been done in both the Survey Research Center and the Research Center for Group Dynamics, although until now there has been little systematic effort to utilize the resources of the Institute for the study of mental health. Appendix A of this report represents the first effort to make available the past findings in a single collection.

2. Build on the decade of research at the Institute which has gone into the measurement, definition, and conceptualization of the human relations environment of the individual in groups and organizations. Among the many independent variables which have been utilized in the Institute's studies of organizations a common core can be found; this core might be referred to as the "human relations environment of industry." It includes three main categories of phenomena or variables: (a) interpersonal relations, especially authority relations of the individual; (b) his group relations; and (c) a number of organizational characteristics such as control and communications structure, reward and sanctions systems, and the like. Not only is this the area in which we have done the greatest amount of research, but it possesses a certain conceptual coherence which makes it suitable for program development. There is reason to think that this approach and the set of variables which have been worked out in the process of trying to understand such organizational outcomes as productivity, absence, turnover, and satisfaction, will have relevance also for the personal adjustment of organizational members -- that is, for their mental
health. This same approach has been applied to the study of the dimensions of worker satisfaction and the insulating and protective behavior of the work group. It should be possible to exploit the findings of research already accomplished to the benefit of theory of mental health, just as additional studies in field of environmental factors in mental health should likewise contribute to the further development of the general theory of group and organizational behavior.

3. **Build on the field theoretic conception of person-in-environment**. While the primary emphasis of this program deals with the influence of the social (human relations) environment on mental health, it is recognized that this influence takes place in conjunction with properties the person brings into the situation. As such, the interaction of psychological and social factors constitutes the primary set of independent variables. Field theory provides a set of conceptual tools for analyzing this interaction. As in the case of organizational theory, the broad tenets of field theory should enhance our ability to bring order and understanding to the psycho-social determinants of mental health, and the application of this theory to mental health should in turn enrich the general theory.

4. **Facilitate the improvement of mental health in industry**. Although this program is primarily one of research rather than action, we will be particularly interested in those aspects of the industrial environment which might be changed in ways which would improve the personal adjustment of the working population. We are interested also in theories which comprehend the process of change, and in methods by which such improvements can be successfully introduced. This orientation not only serves to direct the program toward immediate needs in the field of industrial mental health,
but also promotes the rigorous testing of research findings. Each discovery of a relationship between some organizational characteristic and some aspect of mental health must be validated by demonstrating through experiment or by means of natural change the effects of presence or absence of that characteristic. The development of "engineering skills" in industrial mental health may well be an important side product of this interest in theories of therapeutic social change.

In short, the goals of this program are to study conceptually and empirically the etiology of mental health and ill health, with particular attention to factors generated in the work situation.

The Problem of Values in Mental Health Research and Practice

In any scientific endeavor the personal values of the scientist are necessarily involved in one respect or another. Moreover, this becomes a problem because from time to time scientific judgments and value judgments are confused. This problem becomes particularly serious in investigations in the field of mental health, and the source of this problem is twofold: first, because the very conception of health, especially mental health, is based on an evaluative process which is relative in nature, and second, because personal values must enter into the roles of researcher and practitioner in different ways. Let us briefly consider each of these in turn.

Any attempt to consider good or poor mental health implies "good" or "bad" with respect to some values. Often these values are non-specified and poorly understood. It is unlikely that there is any single and consistent value system underlying all persons', or even all specialists' evaluations of another's mental health. This is meant to imply both that
different theorists hold different values and that any one theorist is apt to hold more than one value with respect to health. Moreover, each theorist is likely to be somewhat inconsistent in his applications of his values in assessing mental health.

Now, the practitioner needs to use a set of values in assessing mental health. The practical decisions of diagnosis and treatment must be based on values about personal and social welfare. Even poorly rationalized judgments about what is good or bad for the individual or for society are at times more important than the most objective and concise conceptual descriptions, in spite of the fact that both of these are important for the therapist. Every decision about treatment does, and must, involve a value judgment. Researchers interested in mental health are apt to be concerned about these same values. They are often concerned about what causes "good" or "poor" states of mental health, the assessment of which is possible only on value grounds. This is unfortunate only to the extent that vague feelings of good or bad, acceptable or unacceptable, are used in the place of clearly formulated concepts and objective indexes. When the scientist attempts to define mental health, he does so on the basis of value judgments which may at times interfere with objective and systematic theory building.

In this program we will avoid any attempt to define mental health in general, other than as a field of study. We will accept however, the value-based judgments of others in the fields of psychiatry, medicine, and clinical psychology with respect to what variables reflect the mental
health of the person. Thus the dependent variables grow out of value judgments of various persons in the field of mental health, but are not defined conceptually in terms of values. As much as possible, the conceptual and operational definitions of various criteria of mental health will be objective and free of consideration of personal values. The problem of values in the definition of mental health criteria will be dealt with more fully in Chapter II.

A second reason for concern with values in mental health lies in their influence on statements of causal relationships. There is a tendency to "read into" a situation a causal relationship between two events if they are both evaluated negatively. One also tends to be blind to possible causal relationships between two events if one is evaluated positively and the other negatively. For example, personal values about the virtue of productivity may blind one to the factors associated with high productivity which may be disruptive of the workers' ability to adjust emotionally to the work situation.

Again the different role of values for the therapist and scientist may contribute to this difficulty. At the present time, much of the theory of mental health has been developed by practicing psychiatrists. In their writings they tend to try to specify both the values involved in assessments of mental health and to suggest causes of various states of mental health. Both of these things should be communicated. However, a problem often arises in that the scientist who attempts to conduct research on the suggested causes may confuse the value judgments with the judgments of cause and effect relations. His conceptions and his statements of hypotheses fall sway to the values rather than the demands of scientific rigor.
Moreover, ego involvements of the scientist in certain value-based theoretical orientations may deter the researcher from entertaining other theoretical approaches. Perhaps one of Freud's major contributions during his early practice was to free psychiatry from the blinding effects of Victorian morality with respect to the role of sex in the etiology of neuroses. But today, the high esteem with which Freud and his theories are held in certain quarters may limit the investigator's ability to appraise those theories critically.

With respect to both definitions and relationships, values are a problem not because the investigator holds them, but because they may hinder his scientific abilities; in the first instance because they may stand in the way of clear conceptual development and objective measurement and in the second instance because they may lead to the uncritical acceptance of untenable hypotheses and theories or limit his ability to formulate and test potentially fruitful hypotheses and theories.

While these are recognized as problems, no easy solution is readily available. We deem evaluative statements to be inappropriate with respect to the definition of concepts, to the statement of propositions and hypotheses, to the methods of logical operations and derivations, and to empirical measurements and tests of hypotheses. Perhaps the most useful safeguard with respect to these is to be concise and unambiguous with respect to the definition of concepts and the statement of propositions and to be explicit with respect to logical and empirical methods, allowing, as much as possible, for independent replication.
While it is our intention to be constantly alert to the problem of values and to rule them out of our scientific statements, this is not to say that we are without values which are central to the field of mental health. Indeed, they will play a significant role in the development of the program. First of all, personal values influence the definition of the program area. Each of the major aims of the program listed above are based on personal values, some dealing with the kinds of social and individual problems which most need the research efforts of social psychologists, some dealing with values about the most fruitful ways of conducting scientific research, some dealing with the kinds of social action we ought to engage in and encourage. One of our paramount values is the well-being of the individual. We are concerned about the factors which are detrimental to the person's health and well-being and about those which are supportive or therapeutic thereto. Not only should our research help us to become more knowledgeable about these factors but also about ways which can contribute to practical control over these factors. Thus, personal values play an important role in the formulation of the program area. In like manner they will influence our selection of problems for study within the program.

To a certain extent, values will determine the research designs which might be used for one purpose or another. For example, it would perhaps be useful to restrict a person's promotion possibilities in order to study the effects of failure. However, personal values about the rights of the individual would rule this out as an experimental manipulation. In order to study this problem, alternative designs would have to be considered. Any attempt to conduct field experiments -- studies calling for
the introduction of experimental changes in the field -- must consider not only the rights of the individual, but also the rights of the organization, of the union, and of the community at large. There may be times when the values of productivity or of stable employment opportunities are more important than mental health values, depending on the structure of the given situation.

In short, personal values are ruled out of the structure of the scientific effort (definitions of concepts, statements of propositions, derivations and tests of hypotheses), but play a significant and recognized role in determining the selection of problems and the ethics of organizational and individual contacts.

Principles of Theory Construction and Substantiation

Since the primary objective of this program is the development of theory, it is perhaps appropriate to consider, briefly, the nature (i.e., logical and conceptual structure) of the theories we hope to formulate and the methods of theory construction which will guide our efforts. Three general principles should form the basis of all our theorizing: (a) the concepts and propositions of the theories should treat "... the full empirical reality of human experience and behavior in a scientific manner without doing violence to them." (Cartwright, 1959, p.4) (b) The concepts and propositions should be related to each other in a logical system, having conceptual meaning and clarity. And (c) they should refer unambiguously to empirical phenomena.

We shall find that these three goals of scientific theory building are indeed stringent and at times virtually out of reach, save for very tough approximations. That is, due to the complexity of the subject matter--
i.e., psycho-social factors in mental health—and to the early stage of development in this field, we shall find too few constructs which have clear conceptual meanings, virtually no systematic logical theories, and rather ambiguous operations for most concepts. Moreover, many theoretical statements in this field will be found to be based on abstractions which rule out, or at least overlook, much of the rich empirical phenomena which one would like to understand and explain. For example, the proposition that situational ambiguities tend to undermine the person's ability to cope with interpersonal conflict may be quite correct and useful as a generalization, but may be only suggestive with respect to concrete behaviors which might be observed in such a situation. Propositions linking biological factors or childhood experiences to adult psychological states or overt behaviors are equally far removed from the complexities of concrete situations. Perhaps this is why the psychoanalyst is reluctant to suggest interpretations about a patient until he has consulted with him under prescribed conditions for many hours.

If the goal is clear and complete systematic theory based on sound empirical evidence, we will of necessity approach it slowly, starting from such meager beginnings. Nevertheless, no matter how difficult the task, our efforts are more apt to be fruitful if we are clearly cognizant of the goal and if we follow sound meta-theoretical procedures.

Let us first set forth some notions about the structure our theories ought to take ideally, i.e., general, systematic, and complete. Then, because we are far from that at the present time, let us consider some of the kinds of theoretical formulations we can now propose, small as they may be. It is the rather large discrepancy between the ideal and the presently possible in theory building that makes a clear and constructive
set of conceptual and methodological principles necessary at this time.

**Concept Formation and Logical Structure**

Ideally, our theories should be of a hypothetico-deductive form—that is, theory which has as a core a relatively small set of basic terms (primitives) and propositions (postulates interrelating those terms) from which a wide variety of other terms can be defined and a wide variety of other propositions (theorems) deduced logically. We should expect two kinds of terms to be used in such a theory: technical terms, consisting of the primitives and the terms defined by the primitives, and logical operators, which we will assume to exist in the common language. Our primary concern here, as in nearly any scientific effort, will be with the formulation of technical terms. All of the statements in any theory should consist exclusively of these two types of terms, and all of the meaning of the technical terms should derive from the formal statements.

**Construction versus abstraction in concept formation.** The development of a technical language rests, not so much on its obvious reference to experience, i.e., to the data for which it is to account, but rather on its utility to express unequivocally relations among ideas. For this purpose, the concepts based on abstraction of qualities from empirical events are likely to both do violence to the empirical reality and to provide no ground rules for connecting them with one another. For example, the diagnostic categories of psychiatric disorders are, for the most part, abstractions from observed symptoms. We are all quite aware that there are many important differences among the cases placed in any given category, and that these differences are lost when the cases are labeled by that category. Moreover, a number of symptoms are associated
with each category, but the system provides no hint about how these symptom variables are related to each other. In short, while the categories may point to some phenomena of which a theory of mental disorder should take account, they do not present a very sound basis for such a theory.

The method of construction in concept formation, as first set forth by Cassirer (1953) and later extended by Lewin (1935), provides a more sound approach to the development of a technical language. Through the construction of a formal hypothetico-deductive system, the terms of the theory take on conceptual meaning, and this meaning is quite explicit and succinct having no meaning other than that given in the definitions and formal propositions.

The use of abstract categories or empirical variables, e.g., I. Q. or Eysenck's factors, has two limitations not inherent in theoretical constructs: first, the process of abstraction is one excluding certain aspects of reality in favor of others, aspects which then never find their way back into the theory, and second, there is a certain amount of "excess meaning" which is never spelled out explicitly, but which the theorist somehow wants to make use of. The method of construction holds that there is no meaning other than that explicitly stated (and thus the rules for use are clearly given) and no aspect of reality has been thrown away. If the concepts are cleverly constructed, the full empirical reality can be represented.

The factor analytic approach to concept formation demands that we overlook differences among the variables which have a "loading" on the factor, in spite of the fact that these differences may be essential to an understanding of the particular case. Using this method, we may inappropriately assume that an individual is high on certain specific variables and low on others because of the way these variables relate to the general factor.
Another severe limitation arises from factor analysis due to the somewhat arbitrary manner in which items are included or excluded. There may be an implicit theory behind such choices, but it is seldom obvious. Many of the restrictions of factor analysis are also to be found in other approaches which depend on empirical variables.

Through the method of construction the relations among concepts are established logically. For example, the connections among such terms as 'force,' 'force field,' 'valence,' and 'power' in Lewin's system are given clearly, with no excess meaning. It may be possible to define 'activities,' 'offices,' 'norms,' and 'roles' through a similar conceptual construction (see Chapter III). Further elaborations of such terms may be developed through additional formal propositions, showing new relations among ideas. The language we are seeking, then, is a commensurate system of concepts such that all relations among them are implied logically.

One of the implications of such a theoretical language, for the field of mental health is that there must be a conceptual "fit" among the terms which refer to a wide variety of empirical events. Concepts about mental health cannot be developed independently from the concepts which will be used to explain mental health, and the explanatory concepts, be they of the environment, of personality, or of past experience, must in like manner be constructed within a single commensurate system. In a later section we shall return to the problem of a logical "fit" among concepts which refer to widely different empirical entities.

Perhaps the ideal for us to follow is that of the axiomatic theory in mathematics. In that field there is no "empirical reality" to which the terms must fit. Instead, there is a mathematical system of concepts and
propositions which may have many "realizations." If some part of the empirical world is a true realization of the system, then to every concept in the system there is a specifiable entity in that part of the real world for which all of the propositions of the system are true statements. However, the method of coordinating empirical entities to systemic concepts may be quite independent of the construction of these concepts in the first place. Euclidean geometry may be very useful for representing spacial arrangements among various physical bodies, but at times a non-Euclidean geometry may prove more useful, e.g., for the distribution of a magnetic field around a celestial body. At the moment it appears that Euclidean geometry may be of little help in representing social relationships, while the theory of directed graphs shows much promise for this purpose.

The method of construction requires the parallel development of a conceptual hypothetico-deductive system and a coordinated system of empirical operations or measures. For every concept in the theory there should be some empirical indicator so that empirical tests of relationships among concepts can be made. However, the conceptual meaning of the theoretical construct is not limited by the operation, nor does it take on extra meaning from the operation. The concept of anxiety, while not well defined within a theoretical system, can be used to illustrate this point. A number of things have been taken as indicators or measures of anxiety, e.g., sleeplessness, lack of concentration, palmar sweat, hyperventilation, GSR, phenomenological reports of worry, fear, or tension, etc., no one of which is assumed to represent the conceptual meaning of the term. Many of the constructs of Field Theory have multiple operational definitions, but these are used only to link the theory with observations of an empirical system, not to specify characteristics of the formal system.
This approach is in contrast to the use of empirical variables which derive from measurement techniques, e.g., I. Q., some of the 'factors' of Eysenck, income and occupation, and various physiological measures. In each of the latter cases, the concept is based on an abstraction from some empirical reality, and the process of abstraction precludes the full treatment of that reality. In addition, such empirical variables are not connected to each other logically, that is, they do not fit into a commensurative system of concepts. So in spite of the fact that they may point to significant aspects of the empirical reality, they are unlikely to lead to the development of systematic explanatory theory.

The hypothetical constructs which are produced by the method of construction entail a somewhat different problem than those involved in the use of empirical variables, namely the problem of existence. The desirability of an isomorphic system of operational definitions was mentioned above. At the same time it was indicated that in many cases such operations will be crude and we would not want to live long with such a poor coordination. There will even be some cases in which there is no operational definition at all for a given concept. If such is the case, how can we say that the concept exists in reality? In the first place, in the conceptual system it exists, as do all concepts, as an idea within a system of ideas. Its empirical existence cannot be handled quite so easily; the fact that one idea fits logically along with a set of other ideas does not mean that it refers to an empirical entity. With respect to existence in the life space, Lewin responded to this type of question with the maxim, "what exists is what has effects." For example, an unconscious motive is said to exist if it leads to observable behaviors, even if it is virtually impossible to measure the motive directly. (It will be noted that the
concept of motive, regardless of level of consciousness, is a hypothetical construct for which all empirical evidence rests in behavior. If the person is able to report that he felt an urge or impulse to do a certain thing, then we can more readily infer the presence of an aroused motive, but it is still an inference from behavior, in this case verbal behavior.) Perhaps the question about hypothetical constructs should not be, "do they exist?" but rather, "are they useful in helping us to understand the complex phenomena we observe?" To the extent that a conceptual system brings order and understanding to an otherwise confusing set of observations, the utility of that system as a scientific theory is established.

The problem of existence is partly a problem in setting forth the coordinating definition between the concept and the operation (or logical connections to other concepts which have operations) and is partly a problem of reliability in the operational measure itself. The objectivity of the coordinating definition (or the validity of the measure) is not a problem to the investigator using empirical variables as his major terms; the measure doesn't stand for anything but the measure itself. In a hypothetico-deductive system, the coordination of a concept to an operation is quite complex. Actually the whole conceptual system has to be coordinated to an empirical system. Then if all of the propositions of the theory are found to be true, the empirical system is a valid realization of the theory. Unfortunately, if they are not all found to be true, we are not sure what alterations are needed. Two alternative corrections can be made: first, the nonsubstantiated propositions can be changed (if this can be done without requiring a concomitant change in other propositions which logically follow from the first and which are found to be true), or second, some of the operational definitions can be changed. That is, if the theory is not
substantiated, it may be because the structure of the theory is faulty, but is generally applicable to the empirical system, or it may be that the measurement procedures are faulty while the theory is quite well structured. In either case we run the risk of rejecting a potentially fruitful theory or of accepting a misleading one. (It should be noted that 'fruitful' and 'misleading' are specific to the phenomena one is trying to explain and not to the logic of the theory itself.)

In regards to the reliability of measuring instruments, there is no intrinsic difference between empirical variables and operational definitions of hypothetical constructs. In the former case as in the latter there may be relatively low or relatively high degrees of reproducibility of measurement, i.e., repeated measures under similar circumstances producing the same results. This is so primarily because once the operation is determined in either case, its application to a given empirical situation is subject to all the problems of measurement. It is assumed here that the nature of the operations for the methods of construction or abstraction will not differ significantly.

**Quasi-constructs and the method of approximations.** Before turning to a more complete treatment of the coordination of theoretical terms to empirical events, there is another principle of theory construction which must be considered. While there is much to be said for logical conceptual systems, premature formal elegance may lead to serious pitfalls. The logician or mathematician is free of the demands of empirical reality. But our goal is to develop a scientific, not just a mathematical, theory. An understanding of, and explanation for, events in the real empirical world is the major objective of mental health research. Therefore, we are interested in formal
systems only because they enable us to state propositions about causal relations among empirical events. We must be careful, for this reason, to create a formal system and a technical language which is adequate to the treatment of those events.

At the present, the field of mental health research is virtually devoid of anything close to a logically tight, commensurate formal theory. It is unlikely that at any given time, particularly at this early stage of development, we will be able to formulate an axiomatic theory for which we can find any but the most simple realizations. And even then we are likely to have to overlook many important aspects of the empirical reality we are trying to treat. A system which is adequate for the scientific treatment of the complex phenomena underlying mental health will have to be built quite slowly and pains-takingly. While we may start with a few primitive terms and definitions, we shall at times also need to use concepts which fit into the system only loosely. Lewin referred to such terms as quasi-constructs, and indicated that they are necessary extensions of the system which should eventually be replaced by formally defined terms.

This last paragraph may seem, on the surface, to be somewhat inconsistent with the preceding ones. As was indicated above, hypothetico-deductive theory is a goal, something for us to work towards. However at any given stage we shall fall short of that goal, precisely because our construction of a conceptual system must continually keep in touch with the rich variety of phenomena which we are trying to understand and explain. We shall approach this goal only through a "method of successive approximations." This method requires a coextensive development of concepts and empirical operations, a constant checking of one against the other, and an
awareness that in some respects these concepts are inadequate. However, through the introduction of well chosen quasi-constructs, and their coordinated operational definitions, it is possible to come to a closer approximation of the reality. In fact, these concepts grow out of observations of reality. Should the quasi-constructs be replaced with well defined, systemic terms, the approximation will be even closer.

The method of successive approximation also has implications for measurement. Ideally, we should like to be able to predict empirical events in detail. However, there are many difficulties and limitations to the measuring procedures now available. Yet even with crude measures it is possible to find some indication of relationships among empirical events, and thus determine, at least approximately, whether or not the hypothesized relationships among concepts are likely to hold as true statements about the given realization of the theory. Thus, in spite of the mensurative limitations, the development of systematic and useful theory can move ahead. Improvements in the methods of measurement will lead to increases in the ability of the theory to predict and to provide meaningful explanations. This will be the case to the extent that the new empirical findings lead the investigator to change the conceptual structure of the theory.

Quantification, Measurement, and the Testing of Theories

As has already been indicated, in spite of our interest in the development of well formulated concepts, these theoretical constructs must have implications for the empirical world. We are interested in scientific theories, not just in mathematical axiomatic systems. Therefore we are concerned not only with the construction of theories but also with the application of those theories to important empirical phenomena, i.e., in realiza-
tions of the theories on the real world. If we are to test our theories in their empirical realizations, we must have an unequivocal operational measure of each concept and we must submit each proposition to an empirical test. Furthermore, the collection of data for such tests must be systematic (i.e., predetermined and explicitly specified) and replicable by independent investigators.

Usually we shall strive for concepts which are variable and unidimensional in nature. The explanation of any given event may be based on several dimensions, but we should be able to deal logically and operationally with each dimension independently from the others. If we can, then we shall be able to manipulate the concept or measure of each dimension independently from the rest, include or exclude them as seems useful and appropriate, and observe the effects of such experimentation. This kind of flexibility is required for the effective use of the methods of construction and successive approximation.

A variety of methodological approaches will be used in the various projected studies in this program, depending to some extent on the stage of theory development, to some extent on practical considerations, and to some extent on the nature of the problem being studied. There will be times when generalizations to a given population will be desired, at which time probability sample surveys will be used. At other times the characteristics of a population may be less important than relationships among variables in a given situation, at which time we may want to conduct field studies. Our interest in change and causal relationships points to a need for natural or field experiments. Since our major interest lies in the effects of the industrial environment on mental health, most of our research will "take place in industrial settings; however there may be times when it will" be more
fruitful to test a given theory under the relatively more controlled conditions of a laboratory experiment, just as there may be times when we would want to make use of the special facilities of the clinic or hospital. At any rate, any test of a theory will make use of quantitative variables and statistical techniques, whether the test be conducted in the field or in the laboratory. But the basic principle of this approach is to utilize whatever methodology is appropriate to the theory and the test situation. We should expect to find that different methods are useful for testing relationships among events then for testing changes in events over time or in testing our ability to create changes of significance to mental health. A variety of empirical approaches is represented in the several project areas outlined in Chapter V.

A final word is in order with respect to the role of psychiatric insights and clinical methods. We have specified a need to test our theories through the use of statistical methods. Does this mean that we have no use for the single case-study approach of the psychiatrist based on intuitive judgments? Certainly not. In the first place we should assume the importance of the individual case, recognizing that in many respects it is unique. We have indeed found that the insights of trained psychiatrists in dealing with a single case are often a fruitful source of hypotheses, contributing both to the construction of concepts and the development of hypothetical propositions. One of the most impressive contributions of psychiatric theory lies in the emphasis on the unique behavior of the person as determined by the unique set of events which make up his experience. However, this determination is lawful, and the laws are substantiated, not by the single case, but by the repeated observations of the relationship under relatively constant
conditions. The importance of this is indicated in any change experiment we may undertake; it is assumed that the laws governing the change are known (or hypothesized) and can be applied to that situation with a given probability of success.

Clinical methods and interpretations may serve yet another purpose. In many cases the social and psychological environment of the person is so complex that various kinds of measuring instruments can only scratch the surface. What is needed is a more global assessment of the situation, taking into account and drawing inferences from a great many factors. Often it is possible, perhaps on a basis of intuition, to make such judgments about complex phenomena, and to arrive at assessments of rather high order constructs without being able to specify all of the factors which are taken into account in some sense or another. For example, in the measurement of such complex syndromes as paranoid tendencies the use of judgments of trained observers on rating scales (or other systematic coding devices) may prove quite useful even though the basis of their judgments is not recorded in detail.

If care is taken with reliability checks of such observation techniques such that the same techniques could be reproduced by another investigator, they may be used as operational measures of concepts in tests of hypotheses. If clinical observations are used for this purpose, it should be recognized that the concepts so measured are very likely "quasi-constructs," that admittedly they are not unidimensional, and that, with further methodological developments, it is hoped that such general intuitive judgment can be replaced with more objective measures of more basic constructs. For the time being, however, they may prove very useful indeed as a rough and early approximation.

It hardly needs to be said that qualified physicians will also be used
for any medical diagnoses of individual cases, although other research personnel may be used to obtain some of the measures which are often pertinent to such diagnoses.

The Field Theoretic Approach to Causation and the Role of Past Experience

This brief consideration of the clinical, psychiatric approach raises still another problem. In most cases, the clinician attempts to understand and explain the development of a mental disorder in terms of the past experiences of the person so afflicted, often of very early childhood experiences. While such experiences may indeed have lasting effects, which we feel can be very important in any general theory of behavior, the causal connections between events during childhood and the behavior of the adult are certainly not simple ones. In fact, on meta-theoretical grounds we must question the notion of causation at a distance, either in time or space. The Lewinian principle of contemporaneity of causation is one which we feel must be taken quite seriously. Is it not apparent that the historical, psychiatric approach is inconsistent with this? The answer should probably be no; that the inconsistency is more apparent than real. There seems to be no reason, in principle, why these two approaches cannot be reconciled. Before suggesting the nature of a possible reconciliation, it will be helpful, first, to spell out the field theoretic approach to causation in more detail. (More complete discussions can be found in Lewin (1951) and Cartwright (1959).)

The principle of contemporaneity stems from a recognition of the logical necessity to separate concrete facts from explanatory laws. "Only what is concrete can have effects. This proposition may seem obvious. But one often ignores it in explaining an event by development, by adaptation ..., by an abstract drive, and in treating these principles as concrete causes....
These fallacies arise in part from a confusion between the law that governs the effects of certain concrete events and these events themselves. Effects can be produced only by what is 'concrete;' i.e., by something that has the position of an individual fact which exists at a certain moment." (Lewin, 1936, pp.32-33)

Cartwright points to four consequences of this principle "(a) Every specific instance of behavior must be viewed as the result of the interaction of several features of a given concrete situation. (b) The description of human behavior cannot, without peril, concentrate exclusively on cognition, or learning, or motivation, or personality, or social influences, or economics, or politics, or culture (nor, we might add, on genetics, or physiology). (c) A distinction must be made between the concrete field, or life space, in which behavior takes place and the phase space, or property space, which may be employed to represent quantitative relations among properties. (d) Causation must be viewed as contemporary with the event caused; 'since neither the past nor the future exists at the present moment it cannot have effects at the present.'" (Cartwright, 1959, pp.14) (This last point refers, of course, to objective, not psychological, time. The 'psychological past' and the 'psychological future' may exist at the present, for the person, and may affect his present behavior. Plans for the future and memories of the past can be important factors in determining current behavior.)

While each of these are important in any theory of causation (and as basic principles they should no more be restricted to psychology than to physics) at the present our primary concern is with the last. A 'field' is conceived of as an interdependent whole. Any changes in the field at time 1 are a function of the total field at time 1. 'Asked to account for 'why' an individual does something at a particular time, the field theorist
describes the situation in which the individual exists at that time. He
does not describe some state of affairs in the individual's past. This is
not to deny that 'residues' of the past may exist at a later time and com­
bine together with other contemporary influences, to make up the complex of
determinants of behavior. But it is these residues, rather than the
original events, which exert influence on later behavior." (Cartwright,
1959, p.10)

While we shall hold that explanations of behavior should be ahistorical,
we shall not deny that the field itself has a history. Each of the factors
in the field at time 1 were determined by the total field at time zero,
and that in turn grew out of the field at time -1, and so on. In like
manner, the changes in the field introduced at time 1 create a new field at
time 2 which may produce still further changes. In principle, we should be
able to trace the person's psychological field (life space) back in this
manner to those events in early childhood. But this is not apt to be very
fruitful, and besides, it takes us quite far afield of our concern with the
industrial environment. Nevertheless, when important residues of the past
are concrete factors in the present field, these factors cannot be overlooked.
In the chapter on personality (Chapter IV) we shall deal more specifically
with such factors.

The time dimension is directly dealt with in quasi-stationary equilibrium
theory. This requires the use of a phase space, which as Cartwright points
out must be differentiated from the concrete field. A phase space is a
multi-dimensional space in which each dimension represents a variable, and
each point represents a unique combination of values on the several variables.
If one of these dimensions is time, this space may represent change through
time as it is determined by the different variables. A quasi-stationary
equilibrium is such a space.

It is possible, for example, to represent on a two dimensional phase space, changes in the balance of forces associated with, e.g., a social norm dealing with nonillness absences on the job (see Figure 1:1). The ordinate represents absence rates in a given plant; the abscissa represents seasons of the year, indicated in monthly units. At each point in the space there are forces in the direction of higher and lower absence rates (represented by vertical vectors in Figure 1:1). These forces may be based in prescriptions and pressures from higher management, values of honesty and "fair play" toward peers, pressures from the family, interests in extra-curricular activities (e.g., gardening, hunting, or baseball), desires to produce in order to get a promotion, etc. For each point on the abscissa there is some point on the ordinate at which the forces in the two directions are at balance. The prediction is that the observed absence rate will be at the level indicated by the balance of forces. But the level at which the forces are balanced may vary with the seasons. In the spring, the opportunities for gardening and the opening of the baseball season may produce stronger forces toward "taking a day off." Within a few weeks, however, management may react by increasing the pressure to stay on the job.

Thus, at any given time there is an equilibrium of forces, but this equilibrium is not completely stationary overtime. There is little doubt but that conceptual tools such as this can aid in our understanding of change for many phenomena like absenteeism. Such conceptualizations tend to make up for what otherwise might look like a complete disinterest in process through time. We are directly concerned with change, but change is to be explained in terms of the total set of factors contemporaneous to the change.
Quasi-stationary Equilibrium Relating Non-illness Absences to the Yearly Cycle

Changes in the strength of forces, and the resulting changes in absence rates are indicated by numbers in Figure I:1. They are associated with the following factors: (1) spring gardening and the opening of the baseball season; (2) heightened pressures from management, and (3) the approach of the holidays. Presumably, interests in gardening and baseball, etc, increase the strength of own forces toward "skipping work." The pressures from management, however, increase the induced forces toward regular attendance and bring the rate back to normal. With the approach of the holidays there is generally a greater need for money and a desire for a "good record" for bonus purposes, resulting in an unusually low absence rate.
A General Scheme of Substantive Mental Health Variables

Up to now we have been discussing theory and research in a very abstract manner, with little concern for the substance of the theories toward which we should be working. While it is important for us to be mindful of the formal characteristics of theories and of the meta-theoretical presuppositions, our primary goal is to understand some very complex phenomena. It is quite unlikely that a very complete or useful understanding can be developed if the phenomena brought under investigation are too restricted or if efforts at formal elegance are advanced prematurely. This assumption leads to two conclusions about the early stages of program development: first, unless we are to be arbitrarily restricted we must cross the boundaries of several academic disciplines both to enrich our conceptual base and to expand our range of empirical measures, and second, (and this grows out of the first to a certain degree) we shall have to live with many ambiguities, making use of a great many quasi-concepts which do not fit tightly into a conceptual system. Our first attempts, then, shall be to draw together a wide variety of observations into a sketchy framework, staying relatively close to the empirical phenomena.

Levels of Conceptualization and Disciplines Involved

Since our main concern lies in the effects of the industrial environment on mental health, variables from a number of levels should be brought into our investigations. In the first instance, mental health is of the individual, and for this reason we shall concentrate on the individual level for most of our dependent variables. However, within the individual there can be distinguished the psychological and physiological levels, and we shall at one time or another be working with both. Although this distinction is somewhat
arbitrary, it has a long standing in the history of science, and a different technical language is associated with each. An eventual reductionism is assumed, that is, in the long run, it is assumed that these two levels will be integrated within a single conceptual system which clearly specifies the relationships among the variables. But no such integration has as yet been accomplished. Until such time, it is somewhat dangerous to talk about causal relationships between psychological and physiological events, and so it is often found to be advantageous at the present to talk of a psycho-physiological parallelism, leaving open the question of causal connections. However, we may soon come to the point at which this is no longer satisfactory.

With respect to the industrial environment, there are even more conceptual levels involved. Aside from the individual, we shall be dealing with dyadic interpersonal relations, with small face-to-face groups, with large scale social organizations and associations, and at times even with the community or larger industrial society. As much as possible the concepts at these various levels should fit into a commensurate system, but at the outset coordinations among these levels will not always be obvious. In spite of the ambiguities, we feel that it is necessary to consider variables at all of these levels if we are to understand the etiology of mental health.

It is clear from this discussion that several disciplines are involved in our programatic efforts—psychology, sociology, social psychology, psychiatry, and medicine, at the very least. If this is an interdisciplinary approach to mental health, it may be useful to compare it to other "interdisciplinary" research in this area. A number of fruitful research teams in the field of mental health are made up of representatives of various disciplines, e.g., psychiatrists, sociologists, psychologists, etc. This cross-fertilization within a program of research has often done much to over-
come the biases and short sightedness of the separate disciplines and we shall be in rather constant contact with physicians, physiologists, and psychiatrists for just this reason. However, too often the advantages of joint efforts by persons from various backgrounds are outweighed by the poor communication based on a lack of common language within the research team. There is a tendency for various related disciplines to invent different terms for roughly the same concept and to use the same term for recognizably different concepts, leading to misinterpretations across fields. In addition, even when there is relatively little confusion about definitions of terms, problems arise because the relations among concepts from various fields are ambiguous. Only recently have we become concerned about ways we might meaningfully link social, psychological, and physiological concepts and ideas and our progress has been severely limited. Because of these problems, there is a tendency in such cross-disciplinary teams for each member to work somewhat independently of the others on his own theory, in spite of the proximity of persons from other fields. As a result, instead of an organized attempt at the integration of the potential contributions of various fields, there tends to be a parallel development of separate theories, each still limited for the most part to a single discipline.

The present program is aimed at the development of a single integrated theory which cuts across several disciplines. That is, we should expect various traditional fields in the biological, social, and medical sciences to stand out as important sources of concepts and hypotheses, but that the theory as it comes into shape to belong to no current field exclusively.

Advocates of "general systems theory" have likewise been concerned about the artificiality of the present breakdown of science into specialized disciplines. They too are searching for a general and integrated theory
which applies to the various levels. Their basic presumption is that at each level there are one or more systems and that all these systems have some characteristics in common. The proper theory to develop is, for them, an abstract theory about systems, i.e., a model which has various empirical realizations ranging 'from cells to societies.' In some respects this is apt to overlook the particular potential contributions of the specialties, ignoring the fact that these specialties have developed in disparate ways which add to our understanding of particular phenomena. Rather than point to the analogies between levels, it is more important for us to point to theoretical connections between levels, implying that concepts at one level have specific meaning vis a vis concepts at other levels, going well beyond the reasoning by analogy implicit in the general systems approach. That is, we should be attempting to develop theory which cuts across levels and integrates them into single explanatory system rather than to set forth theories which are restricted to a single level or even which can be applied to more than one level but only one at a time.

A Field Theoretic Formulation

While the basic interest of this program is in the effects of the environment on the person's mental health, it is unlikely that this can be studied fruitfully apart from a consideration of the total person-environment field. That is, we begin with the basic field theoretic postulate that behavior (including manifestations of the person's mental health status) is determined by an interdependent field of forces which have their source in both the environment and the person. In the development and elaboration of this conceptual approach there has been some confusion about the meaning of $E$ in the formula $B = f(P, E)$. The confusion lies not in the conceptual statement of the
approach, for it is clear that the $E$ we must consider is the environment as it exists for the person, i.e., the psychological environment. However, in much of the experimental work the measurement or assessment of environmental factors is quite independent of the person's perception of them. This independent objective environment is a major concern here. While there is usually a reasonably high degree of correspondence between the objective physical and social environment and the psychological environment, we must be clear conceptually when we are dealing with one or the other. More exactly, we must analyze the relationship between the social and physical environment on the one hand and the psychological environment on the other, if we are to understand the effects of the former on behavior.

In a major statement of Field Theory as a systematic conceptual framework in psychology, Cartwright (1959) proposes a scheme for differentiating the objective and psychological environments within a general paradigm of person-environment interaction. He employs "... a schematic diagram of the various classes of facts and functional relations with which the psychologist is concerned." This diagram is presented here as Figure 1:2. It will perhaps be useful to quote Cartwright's description of his diagram at length:

Each circle stands for a given class of events, and each line stands for a given kind of interdependence. The various circles have the following meanings: $P$ stands for those facts which Lewin represented in the person; $E$ refers to the psychological environment; $S$ indicates the sensorium, or that part of the boundary zone of the life space which receives "information" or "stimulation" from the physical-social world; $M$ symbolizes the motorium, also a part of the boundary zone, which 'acts upon' the physical-social world; $H$ represents the foreign hull of the life space, defined by Lewin as those facts 'which are not subject to psychological laws but which influence the state of the life space'; $A$ denotes those alien facts making up the physical-social world which have no influence upon the life space at a given time.
A Schematic Diagram of the Facts and Relations Involved in the Life Space, the Boundary Zone, and the Physical and Social World

(P)  (S)

(E)  (M)

(H)— — — (A)

(P and E (person and environment) make up the core, or the 'classical parts' of the life space, but it is clear that the boundary zone, containing S and M (sensorium and motorium), should also be considered a part of the life space. The solid lines connecting these circles to one another are intended to indicate that all these facts are interdependent and can be handled by a single system of commensurate concepts. Perceptual processes, for example, are located in S and are both influenced by and influence motivational states of P and cognitive states of E.

The dotted lines connecting H (the hull) with S and M refer to those processes by which the physical-social world affect the sensorium of the life space and by which the motorium exerts effects upon the physical-social world. H and A (alien facts) together make up the 'objective' world of physical and social facts, and the dashed line connecting them indicates that nonpsychological laws govern their relations. It should be apparent, however, that this representation of the 'objective' world is an oversimplification in that it treats physical and social facts homogeneously.
Cartwright then goes on to point out that one of the major areas for theorizing is psychological ecology—the study of the ways that H affects P and E via S. Another important problem area is the effects of P and E on M. The primary importance of this diagram is in its insistence on the fact that the life space, the boundary zone, and the physical-social world all have to be considered, and that there are circular processes involving the total system: P, E-M-H-S-P, E. That is, P and E are seen as influencing M (concret motoric behavior) which in turn influences H. The physical and social changes produced in H then have a new impact on S and eventually on P and E. While in some cases some of these steps are rightfully short-circuited, if we systematically overlook any of these classes of events or any of the relations among them, we shall fail to account for all of the phenomena in a realistic way.

If we are to make use of this diagram in the study of mental health, we shall have to make various elaborations and specifications as to what these classes of events contain, that is, to sketch out the various concepts which might be located within the circles and the lines connecting them to each other.

First, although they are not completely overlooked in Cartwright's diagram, there is some ambiguity about just where one should place various physiological events. To the extent that the sensorium stands for the perceptual apparatus (i.e., afferent neurons and end organs), some physiological facts belong in S. In like manner, the motorium may stand for the voluntary muscles, and perhaps the efferent neurons. But where do such factors as hypertension or the secretion of pepsinogen go? Considerable evidence has been accumulated to indicate that such factors are related to psychological events which we might place in P or E as well as to objectives social or physical factors.
While we cannot assume that they belong properly and exclusively in any one of these, it is perhaps better to represent them in $H$, but to allow for a somewhat different kind of interdependence between the physiological organism and the other parts of the system than in the case for other parts of $H$. For the most part, then, we shall treat the physiological properties of the person as a special part of the foreign hull, assuming them not to be governed by psychological laws, but to affect and be affected by the life space of the person. Thus the objective world, as distinguished from the psychological world, is made up not only of various physical and social events but also of physiological events of the person himself.

There is also some confusion about the location of 'behavior' in this diagram. In the first place, if overt physical (or vocal) behaviors are being considered, they are facts which probably ought to be represented in $M$, the motoric. These are the events which have some direct impact on the external environment, which produce changes which then might be picked up by $S$ (and which are in part felt directly by the sensorium). But Lewin also used the term 'behavior' in a more technical sense. Typically, he represented the person as being located in some region of the psychological environment. At times he referred to 'locomotions' of the person from one region to another as behavior. Locomotions of this sort may or may not be accompanied by overt physical behaviors. Still a third meaning of 'behavior' in life space terms is that referring to any change in the structural or dynamic properties of the life space, a change in the state of the system from one time to the next. The term 'behavior' seems less appropriate to this last formulation than it does to the others, but however we label it, this may be a useful concept for various purposes. In fact, we may find use for an analogous concept referring to any changes in the total $P, E, M, S, H$ system, to the
extent that this is an interdependent system. In any case, we will be interested most often in molar behavior; minute changes in physiology will seldom be our major concern.

When Cartwright first set forth this diagram, he was not necessarily interested in its utility for theories of mental health. No explicit rules were suggested for ways to represent measures on criteria of mental health. The primary dependent variables for the present research program (see Chapter II) are appropriately located in or across several of the panels of variables represented by circles in the diagram. Some of them, e.g., balance of psychic forces, refer more or less exclusively to the life space. Others may be seen as disturbances of the sensory apparatus or of the motorium. We will find still others only as a relationship between panels, e.g., perception of reality is represented as a discrepancy (or lack thereof) between the objective and psychological environments. There has perhaps been a problem in the past due to the tendency to place all of the indicators of good or poor mental health in the person, that is, due to the failure to recognize differences between symptoms in the person and those in the psychological or objective environment. For example, the notion of "adjustment to environment" may refer to a relationship between $P$ and $E$ or among $P$, $E$, and $H$. An understanding of the person's mental health requires knowledge as to which of these two types of relations may be the source of trouble. From this it is clear that an assessment of the person's mental health requires observations of variables in all parts of the system. We have already indicated that the explanation or cause of mental health also is located in and across all of the parts of the diagram.
While this diagram has proved useful in many respects, it is recognized as a simplified representation. The various circles and connecting links are not meant to indicate specific variables. Each of them should be further differentiated, and in many cases the distinctions within them may prove to be nearly as important as the distinctions among them. For example, the circle representing properties of the person, P, includes a motivational system, a set of defense mechanisms, a hierarchy of self concepts, etc. As will be seen, the self-identity is felt to be a vitally important aspect of personality. Each of the other circles can be equally well differentiated, e.g., A and H each into physical, physiological, and social, and the dynamics of each is likely to be quite different from the others.

Chapters II, III, and IV will specify in more detail the contents of these various panels of variables and of the ways they might be interrelated.

Our objective, in presenting and using a systematic field theory approach is to bridge the gap between the traditional clinical and epidemiological or demographic approaches. Clinical psychiatry typically investigates only the person and his psychological environment. Seldom does the clinician attempt to validate his information about his patient's objective home or work environment, nor is he usually interested in doing so. Thus his conclusions about the effects of the objective physical or social environment on his patient's condition are seldom substantiated in reliable empirical observations, no matter how insightful they may be. Yet, the clinician may do a very intensive job of describing and interpreting the properties of and the relations between the person and his psychological environment.

The demographic or epidemiological approach, on the other hand, tends to delve quite objectively into the properties of the "real" world and to relate them to the person's physical or mental health. But here, the particu-
lar ideosyncratic meanings of the objective environment (i.e., the psychological environment) are slighted. We need to consider both the E and the H variables and the ways they are interrelated. We need to investigate, as does the psychiatrist, the ways in which the life space determines the mental health status of the person. But we need to be aware at the same time that the life space is as it is at any given time because of various characteristics of the external world. The implication from this is that we also need to study ways in which the objective environment may affect mental health via the life space.

In the section on meta-theory above, the advantages of commensurate theoretical systems were discussed. Now it is possible to be more explicit on this principle with respect to the field theoretic approach to mental health we are proposing. Let us consider the conceptual "fit" among concepts of the person and his psychological and objective environments. It is desirable, eventually, to have logical (i.e., by definition) relations which permit unequivocal derivations. Some are possible now, take the frustration of needs and values as an example. An approach need may be defined as an internal system or energy source in the person which has the potentiality for setting up forces in the psychological environment toward a class of environmental regions (objects or activities). A hunger need, for example, is a potentiality for setting up forces toward eating. Thus the relevance or "fit" of the internal need to the environment is given in the definition of need and the implied definition of the class of environmental events (e.g., eating is an ingestion of food and food is a substance which satisfies the hunger need). Normally the activity, eating food, cannot exist in E unless it also exists in H; but if the person is eating food in terms of
ment while the organism is eating a nonfood substance in the objective environment (i.e., he is hallucinating), then the organism will not be nourished and will "inform" P via the sensorium in various ways.

Similarly, we can define avoidance needs and positive and negative values so that there is a logical P, E, H fit which permits rigorous derivations with respect to what environmental situation will produce frustration and satisfaction.

Internalized conflicts of needs, values, and roles can also be treated as having relevant personal and environmental aspects. Stock's concept of 'resonance' (Stock, 1958) and the concept of 'conflict arousal' may be useful for this purpose. A single need may be aroused by a relevant environmental situation, i.e., it sets up a valence (force-field). The same situation may arouse a second need (or value) which may or may not be in conflict with the first, depending on the location of P and the two valences. Two internal agents are said to be in conflict when a situation which arouses one typically arouses the other also, and the two forces are in opposite directions. Thus the need to aggress and a value against aggressing constitute an internalized conflict if any situation which arouses a need to aggress against another person also arouses the value against aggressing against that other person.

Conflicts set up by internal agents vary greatly in how easily they can be resolved by the person's actions. If P has a conflict between a desire to see a movie and a wish to see a friend, he might resolve the conflict by inviting the friend to the movie. Of course, the success of this problem solving attempt (or coping technique) will depend on the objective environment, E, as well as on P. The friend may refuse to go. But the above
need-value conflict dealing with aggression is difficult to resolve regardless of the other characteristics of the situation which arouses it, for any activity in that situation still leaves the person in a conflict; expressions of aggression violate the value, but failure of expression frustrates the need. The only successful action on the part of P is to escape into a situation in which the conflict is not aroused, unless the person employs one or more of the less problem-oriented defense mechanisms to distort the situation or repress the need.

It is perhaps evident in this discussion that a commensurate technical language including concepts of the person and his psychological and objective environments is highly desirable; and that some steps in that direction are possible now. The reader will find, in later chapters, however that we do not have a completely adequate and well integrated language at this stage in our development.

Psychological ecology and the problem of objectivity. We have already stated our intention of describing both the psychological environment and the objective physical and social environment. As we shall see in Chapter II, the discrepancy between the two is a measure of the person's contact with reality—an important mental health variable. Of course, we must use different sets of data in order to measure the person's contact with reality, but it is necessary to use the same dimension for measuring the two environments. If we know, for example, that the objective length of a staff meeting was 53 minutes, we must ask the participant how long it lasted, not how aggressive the boss was, in order to get commensurate data.

We have further assumed that the dimensions used must be relevant to mental health and must therefore be dimensions which exist in the life space. Thus we are faced with a task of psychological ecology: to describe the
objective environment objectively but in psychological terms or dimensions. The usual gram-centimeter-second system of measurement will suffice for measuring such properties as the length of the meeting, the weight of the boss, and the size of the conference room. But how shall we measure the comfort of the furniture, the richness of the furnishings, the aggressiveness of the boss, the supportiveness of a colleague, the power of a V. P. or the importance of a decision to be made? And are these properties of the objective world or are they only subjective impressions of P which have no existence outside his life space?

We assume that all of these may reflect objective properties of the external environment, and that in principle these properties could be measured independently of any person's reactions to them, in the same sense that the length of a meeting can be so measured. Just as a hue can reflect the wavelength of a beam of light, so the comfort of a chair can reflect a set of more complex physical properties of the chair. However, such objective properties as the aggressive behavior of the boss are so complex and so little understood that we are, at present, almost completely unable to describe these as physical movements. Fortunately it is not necessary for us to do so, for we are interested in the psychological properties of the objective environment. All that we require is that we can describe these psychological properties objectively—not that we can "reduce" them to physical descriptions. We can obtain such objectivity, sufficiently if not completely, by using scientific observers. If trained scientific observers report with high observer reliability that the behavior of the boss was aggressive, then we can accept this as valid evidence, provided that their judgments were implementing explicit conceptual definitions of aggression.
Here it is worth making explicit that the impersonal and the personal aspects of the objective environment are to be treated equivalently. For example, we would use essentially the same procedures (e.g., trained observers) for determining that a chair is soft and that a boss is aggressive.

How, then, can we distinguish between objective properties of the real world, stated in terms of psychological properties, and P's subjective responses to this world? Essentially we shall make this distinction in terms of scientific observers. We shall define what exists objectively as what is reliably reported by scientific observers, set to observe in an unbiased way, what exists. If there is good agreement among such observers and if they report systematic differences from one situation to the next, then we will infer that these observer reports reflect some real aspect of the objective environment rather than some common properties of the observers themselves.

What may we infer about an objective social organization and about contact with this reality by examining reports from participants? Suppose, for example, that a worker reports that his supervisor was "hostile and aggressive" in a recent interaction whereas the supervisor describes the same behavior as "friendly but firm." Shall we assume that the worker is a bit paranoid or that the supervisor is distorting his report about his own behavior? Of course, both may be true, so we can only infer that at least one of them is distorting. But now suppose that 3 other workers independently give reports which agree completely with the first worker? In some of our previous studies of supervisory practices (see the Appendix) we have taken such shared perceptions as operational definitions of the objective practices. But for the present purposes this assumption is unacceptable, and we would instead assume that all four workers would be likely to share the same
biases—at least those biases which stem from their role. Though these sources of bias may not affect all their perceptions, we shall be on much safer ground if we rely on objective observers. By so doing we hope to be able to describe objectively the organizational environment but to do so in relevant psychological terms (see Chapter III).

In this chapter we have stated the aims of the Program and have described at a fairly abstract level, our meta-theoretical approach to theory construction. These orientations have guided, partly explicitly and partly in more hidden ways, the chapters which follow. In Chapter II our conception of mental health represents an explicit attempt to define mental health in ways which do not rule out environmental influences and which will facilitate quantitative research. Our discussion of the industrial environment (Chapter III) contains many implicit effects of this meta-theoretical approach as well as an explicit attempt to explore the implications of our distinctions among the psychological environment, the foreign hull of the life space, and alien factors. However, these implications have not yet been fully worked out, and many of our concepts for describing an industrial organization are taken over from past research, some of which was based on other orientations. Chapter IV on personality is included mainly as a result of our field-theoretical premise that behavior (and mental health) is always a function of the interaction of person and environment. Finally, our selection and preliminary description of priority research problems (Chapter V) is most clearly dictated by the aims of the Program but least explicitly determined by meta-theoretical considerations as contrasted to consideration of the present state of empirical knowledge and research methodology.
Chapter II
MENTAL HEALTH CRITERIA

General Orientation

The title of our research program, The Intercenter Program of Research on Mental Health in Industry, reminds us immediately of our obligation to define what we mean by mental health -- industrial or otherwise -- and to describe our approach to this criterion area. The complicated issues involved in attempting such a definition and description have been summarized well in two attempts to survey the area of mental health concepts. Both these recent attempts were carried out at the initiative of the Joint Commission on Mental Illness and Health. The Survey Research Center, in preparation for a national survey of mental health sponsored by the Joint Commission requested William A. Scott (1958) to prepare a review of the research definitions of mental health and illness which had been used by investigators in the field. The Joint Commission on Mental Illness and Health asked Marie Jahoda (1958) to conduct a review of the pertinent literature regarding the psychological nature of mental health, with special emphasis on criteria of positive mental health. Both these reviews have been of great value to us in our work on mental health criteria. One of the ways in which their value was felt earliest and appreciated most was in their posing some of the crucial problems in the development of adequate concepts of mental health. A listing of those which appear most relevant to us would be as follows::
1. Is a concept of mental health (illness) necessary?

2. Is mental health a unitary phenomenon, to be handled in terms of a single concept, or is it rather a number of different phenomena, a vague multidimensional notion?

3. Are we to conceive of mental health as something which is located primarily in the person, in the environment, or in the interaction of person and environment?

4. Is it possible to conceive of mental health in terms which avoid judgment as to the desirability of conforming or deviating from a social norm?

5. What is the conceptual relationship between mental health and mental illness?

6. What is the relationship between physical health and mental health?

It seems likely that in the course of answering these six questions we can do much to expound the approach which we have taken to criteria of mental health.

1. Is a concept of mental health necessary?

This was one of the first questions which Dr. Jahoda set herself to answer in her monograph on concepts of positive mental health, and she answers the question in the affirmative. Her reasons for doing so are that the terms mental health and mental illness are already part of the public vocabulary, that serious and continuing efforts are made to raise money and to develop public awareness of the social aspects of what is termed "mental illness," and that major programs of government
and private agencies are organized around this terminology. Miss Jahoda
goes on to say that the helping professions -- psychiatrists, clinical
psychologists, psychiatric social workers and others -- also make use
of the terms mental health and illness. Their lead has been followed
by a number of social scientists who have begun to do research in this
broad area. Dr. Jahoda is sensitive to the difficulties which attend
concepts so vague as mental health and illness, and she is aware also
of the value-laden character of these concepts as they have been used.
Nevertheless, she reaches the conclusion that the broad concept of mental
health is needed, that it is a researchable concept despite its value
connotations, and that serious scientific work can gradually give to the
concept a more precise and rigorous meaning than it has yet enjoyed.

Faced with the same evidence and having the great advantage of
Jahoda's completed work, we came to a basically different conclusion.
We propose that definitions are always matters of scientific convenience,
that the test of any concept is whether or not it furthers the scientific
purposes of empirical research and theory construction. We might add
that any concept which tends to introduce implications of value and
morality to the process of theory construction and hypothesis testing is
a concept to be avoided. We recognize the importance of values in
determining what problems are worthy of scientific effort and which
are to have priority. We recognize the place of values also in making
judgments about the ways in which scientific findings are to be applied
and the areas of application which should be sought out or avoided. These
however are all processes which either precede or follow the processes of
concept formation, hypothesis testing, and theory construction.
For these and other reasons which will be described later in this chapter, we have concluded that the terms mental health and mental illness are not desirable as scientific criteria. We believe that these terms are useful in communicating to the public and useful also in referring to a broad but somewhat hazy area in which research might be done or corrective action be taken. We believe that the terms mental health or mental illness may even be useful as a convenient way of summarizing a large number of more specific criteria. We intend however to avoid using mental health or mental illness as criteria themselves. We will instead use a larger number of criteria more rigorously defined, and we will leave the users of our research results the residual problem of piecing together their own preferred definitions by using such combinations of our criteria as they consider appropriate for their purposes.

2. Is mental health a unitary phenomenon?

There is little doubt that the term mental health (or ill health) has been used in ways so diverse that they defy any attempt at combination. As Scott points out (1958), "The terms mental ill health has been used by different researchers to refer to such diverse manifestations as schizophrenia, suicide, unhappiness, juvenile delinquency, and passive acceptance of intolerable environment." He concludes with admirable conservatism that "Whether some or all of these various reactions should be included in a single category of mental illness is not clear from a survey of the current literature." We would agree that neither the unitary nor the multidimensional character of mental health has yet
been subjected to empirical proof. We feel however that the proper
and conservative assumption at this stage is the multidimensional
approach with the possibility of unidimensionality held as an interesting
problem for empirical demonstration. At present the theories concerning
the various phenomena listed by Scott do not easily permit translation
or interchange of concepts from one to the other and there is a dis-
heartening scarcity of empirical efforts to show correlation among
the various phenomena referred to as components of mental health.

3. What is the locus of mental health criteria?

Are they to be located in the person, in the environment or in the
person-environment interaction?

Jahoda points out that one has the option of defining mental health
in at least one of two ways: "as a relatively constant and enduring
function of personality, leading to predictable differences in behavior
and feelings depending on the stresses and strains of a situation in
which a person finds himself; or as a momentary function of personality
and situation." She adds that in the literature of mental health a third
type of statement is often encountered which to her is no more than a
"colloquial ellipsis." This is the characterization of a situation or a
society as healthy or sick. Thus, Erich Fromm (1955) speaks of the
"sane society," and writers on communism and facism have characterized
the Soviet and Nazi societies in terms usually applied to individual
clinical cases, paranoid, for example. Certainly most clinicians have
attempted to understand mental health and illness in terms of the first
of these options. They tend to explain mental disorder as an outcome of
the early experience of the person. This is a point of view which is not easily reconciled with the ahistorical approach represented by Lewinian field theory. Our approach, reflecting that theory, would insist upon making clear the contemporary form in which earlier experiences of the individual act to affect his perceptions, attitudes, and behavior. We would not deny the importance of his childhood experiences; we would, however, insist that the linkage by which those experiences affect him in the present be made explicit. When we attempt to evaluate the behaviors or attributes of an individual with respect to mental health, we are observing that individual in a given situation and at a given moment, and that the immediate causes of his present behaviors and attributes must be understood in terms of factors operative at this point in time and in this situation. That these factors have antecedents which are located at other points in time and space is undeniable, and it is typically the business of the clinician to explore and reveal linkages of exactly this kind. Nevertheless it is the forces acting in the present time and space which determine the individual's present behavior. Strictly speaking, then, our point of view is that what is healthy or unhealthy is the behavioral response of an individual to a situation, that is, a person-environment interaction. For example, if a man has been assigned to a monotonous job and his reaction to this monotony is first a state of utter boredom and subsequently a tendency to hallucinate, the thing which we should judge to be unhealthy is the process of hallucination, which is neither a characteristic of the individual alone nor certainly of the situation, but rather an interaction product of individual in a situation. Similarly, if the consistently
brutal behavior of a gang boss should provoke a worker to a rampage of vandalism, we would again assert that it is the acts of undiscriminating hostility and destruction which represent "unhealthy" behaviors. From an observation of these acts only, we would not conclude that we were dealing with an individual who was mentally unhealthy, nor would we conclude that the situation should be characterized as mentally unhealthy without respect to the individual actor. Again the locus of healthy or unhealthy behaviors lies for us in the person-environment interaction.

One of the clinicians whose approach to mental illness seems most closely related to this point of view is Lindemann (1953). In his comment in the *Interrelations between the social environment and psychiatric disorders* Lindemann states, "We find it preferable not to talk about a 'case' in psychiatry -- rather we try to assess functional impairment in specific situations as viewed by different professional groups in the community. So a 'case' is really a relationship of possibly pathogenic situations and appropriate or inappropriate behavior to that situation. It is often a matter of arbitrary choice whether such a person becomes an object of psychiatric care."

For us then the basic unit in studying mental health or illness becomes the act or response of the individual. Responses can by the introduction of some external standard be judged to be appropriate or inappropriate, healthy or unhealthy. In choosing the response or act as our basic unit for research on mental health, we do not however forego all possibility of characterizing individuals or environments more broadly. Consider our previous example of the worker who responds with acts of
violence and destruction to the harsh treatment of his boss. If the worker responds in such a hostile fashion to a wide array of situations (including situations which do not produce such hostility in most persons), then we should feel justified as referring to this individual as characteristically "hostile" and "violent." Moreover, if we were able to measure in some fashion the extent of his hostility and if it were found to go beyond the range of hostile response which we had defined as "healthy" then we should be justified also in referring to this individual as mentally unhealthy, at least so far as the component of hostility is concerned.

It seems to us equally justifiable (and not, as Jahoda calls it, "colloquial ellipsis") to characterize situations or environments in similar fashion. If we have identified an environment which evokes extreme hostility from the large majority of people who are exposed to it, including many people who show no conspicuous hostility in their responses to other situations, then we should feel justified in referring to this as a hostility-provoking environment. If the environment is to be labelled unhealthy or pathogenic, we must have either defined the hostile acts which it provokes as unhealthy per se, or we must qualify our description by specifying the consequences which justify the designation unhealthy.

4. Must mental health or mental illness always be defined in terms of social norms and in terms of deviancy from such norms?

The judgment that a given response is healthy or unhealthy necessarily involves the imposition of some standard. The standard may consist of a
social norm or it may consist of a norm which has its origins outside the society or situation under study. If the norm is one which the researcher or clinician brings to the situation under scrutiny, this would provide an example of what we mean by the introduction of an external standard. Our position would be that the characterization of a response as healthy or unhealthy necessarily involves the imposition of such a standard and therefore, by implication at least, the intrusion of a value judgment. This point of view can perhaps be clarified by continuing the previous example of the worker who responds in a hostile fashion to harsh treatment from his superior. In order to characterize the worker's response with respect to hostility we must have some scale or array of responses (explicit or implicit) which permits us to locate the observed response in a possible range of responses which differ in degree of hostility. Thus we might have at one extreme the passive acceptance of harsh treatment by the worker and at the other extreme the unreasoning destruction by him of any company property which comes to his hands. Somewhere between these two would be, for example, strong verbal retaliation toward the supervisor. If we had such a scale with a number of identifiable points corresponding to different degrees of hostility, our next step would be to locate the actual response of the worker somewhere on this scale. Having done so, we would be able to state the amount of hostility which the worker had manifested in terms of our scale positions only. We could not assert that his response corresponded to N units of hostility in any absolute sense unless we had been able to establish a zero point for our scale and equal intervals along it, two extremely unlikely events at this stage of conceptualization.
and research. In order to characterize this worker's response as relatively high or low on the scale of hostility we should have had to have observed enough other workers in similar situations to be able to judge whether the individual now under observation tended to be higher or lower in his hostility response than most. This is a procedure which in itself poses no serious conceptual difficulties. We can now classify the degree of hostility of this worker's response relative to some test population. What additional assumptions would we have to make in order to characterize his response as healthy or unhealthy? It seems clear that in order to make such a judgment we must determine what range of responses on this scale of hostility are within the limits of health and what deviation from this range is to be defined as ill health. We would also have had to assert that the dimension of hostility is a component of mental health as we define it. It is at this point that problems of value judgment and of cultural relativity arise. Someone may assert that hostile responses on the part of workers toward supervisors are disfunctional for society and are therefore to be defined as unhealthy. Another person might answer that is is the duty of a free citizen to oppose attempts at brutal rule wherever encountered, and that the hostility of the worker is a manifestation of health. The purpose of the example is not to argue either of these points of view, but rather to illustrate that the judgment of a response as healthy or unhealthy appears to us to involve the introduction of some norm and an additional value judgment regarding what range of deviations from that norm will be considered healthy.
Certainly every culture defines an appropriate range of responses to situations which are frequently encountered by members of that culture. And every culture also determines whether a deviation beyond the appropriate range on a certain dimension is to be understood as inappropriate in the sense of legality, morality, etiquette, health or illness, or in other terms. The clinician or researcher may accept this cultural definition, in effect sanctioning the values which produced it, or he may introduce values of his own. In any case, it seems to us that the value judgment is an inevitable part of the characterization of a response as healthy or unhealthy. This constitutes one of our major reasons for avoiding the language of health and/or ill health in our research and for leaving such judgment to that post-research situation in which overall conclusions, inferences, or plans for ameliorating health-relevant conditions are being made.

The issue of whether mental illness is to be considered acute or chronic in nature, which Scott suggests as one of the basic problems in the definition of mental health and illness, seems to us to be resolved in terms of the approach which we have just described. The individual is regarded not as having some quasi-permanent subliminal state of the disease but rather as possessing certain characteristics and attributes which predispose him to react inappropriately to certain situations. Chronic, then, becomes a term which signifies simply that an individual has long remained in a situation which presents stimuli beyond his ability to handle appropriately or that he reacts inappropriately to the variety of situations which he encounters. Most people try to avoid or resolve such situations themselves and may be assisted in avoiding or resolving them by others who observe their difficulties.
Accordingly, we are inclined to agree with the statement of Felix (1950) that "Unless the kinds of mental illness are specified I can’t conceive that mental illness is a chronic disease. More mental illnesses by far are acute and even short term than there are mental illnesses which are chronic and long term," (p. 163).

5. What is the conceptual relationship between mental health and mental disease?

More than one issue lurks behind this question. We can dispose relatively quickly of the problem of whether mental health is simply the absence of mental disease. Many clinicians reject this formulation and we think properly so. They assert that mental health and mental disease are qualitatively different. Such a distinction appeals to people who believe like Rümke that "The understanding of the disturbances of the sick man hardly contributes to the understanding of the normal man." We would feel with Jahoda that so radical a statement tends to deny the extent to which the insights of normal and abnormal psychology have re-enforced each other.

Our own position tends to be that a single set of dimensions should be adequate to define both mental health and mental illness. Let us grant immediately that the necessary concepts to specify this set of dimensions are not yet fully in our possession. Nevertheless our prediction would be that eventually a set of dimensions will be defined such that both mental health and mental illness can be described in the same terms. Suppose, for example, that one of the dimensions relevant to mental health and mental illness is the ability to perceive
accurately the objective world. Individuals can be measured and rated with respect to this ability, and might be found to range all the way from persons who hallucinate wildly under all test situations to individuals whose perceptions are completely accurate under all test situations. Somewhere between these two points would be a point which corresponds to the statistical norm for the test population. Thus we might discover that the "average" American adult falls somewhat short of the extreme scale point representing accurate perception. He might, like the subjects in Bruner's (Bruner & Goodman, 1947) experiments, tend to exaggerate the diameter of coins in a manner associated with his own economic position. After several days of food deprivation he might, like many apparently "normal" victims of extreme situations come to have hallucinations regarding the presence of food. Suppose that we now have a scale representing the dimension "ability to perceive reality" and we have identified on this scale the distribution of scores for American adults. It remains only for us to designate a range which represents "healthy" responses. If we equate normal and healthy we have simply defined the majority of American adults as healthy and asserted that deviations from the majority response will be defined as unhealthy. Alternatively we might define as most healthy that person whose responses show the least deviation from the objective fact. It remains then only to indicate how great a deviation from this "perfect response" will be defined as within the limits of health and where the beginnings of illness will be proclaimed. Other standards can be introduced on theoretical or pragmatic grounds according to the judgment of the clinician or researcher.
Now let us repeat the process for another dimension which is alleged to be relevant to mental health or illness based upon our theory or upon our clinical experience. We might decide that another such dimension is autonomy: the ability of a person to act independently of immediate environmental pressures when he has internal reasons for doing so. At one extreme on this scale might be the individual who acts only in response to voices which are audible to no one but himself. This individual's behavior is quite independent of the environmental cues which are apparent to most other people. At the other extreme is the individual who is immobilized until he understands what others wish him to do in a given situation; then he acts, always in response to the wish of someone else even if he perceives the act to be contrary to many of his own internal motives and goals. Again, the range represented by "normal American adults" will lie somewhere between these extremes, and between these extremes also will be the range which any judge is likely to designate as healthy. Both extremes on this scale, that represented by the person who acts only in obedience to voices unheard by others and the person who submissively refuses to assert his own wishes in a situation are likely to be defined as unhealthy.

We can now visualize an array of dimensions such that in combination they comprise all the phenomena relevant to mental health or illness. We can imagine also that on each of these dimensions the distribution of scores for the adult population of the U.S. has been ascertained so that it becomes possible for us to indicate the average score for American adults and to specify the range on each dimension.
which will include any given proportion of the population. We can designate also a range on each dimension which corresponds to what we will term healthy. Such a designation must, of course, include an explanation of the basis on which this judgment was made. The pattern of responses which is maximally healthy in terms of individual happiness and psychological reward may not, for example, correspond closely to the pattern of responses which maximizes the survival value of a society. It is necessary before attempting the designation of the range to be termed healthy to decide the underlying criteria for making such judgments. Whatever the criteria, it seems likely that the range designated healthy will vary from one dimension to the next. It may be, for example, that with respect to the dimensions of autonomy both extremes of the scale would be defined as unhealthy, so that neither the complete conformist nor the individual who behaves wholly without response to social pressures would be defined as within the healthy range. For other dimensions, for example that of accurately perceiving reality, it may be that the maximally healthy response is the most extreme response in the direction of accurate perception. In any case these judgments must be made on the basis of theoretical derivation or clinical experience.

It may be worth indicating the extent to which such value judgments are deferrable. Suppose that we undertake to classify a response as healthy or unhealthy response in terms of its consequences -- healthy for what or unhealthy for what? We might decide that one response was healthy (appropriate) in terms of the individual's immediate happiness but unhealthy (inappropriate) in terms of the wellbeing of
some larger aggregation of people. We must now face the deferred value judgment and decide whether the greater good is represented by the immediate happiness of the individual or by the implications of his acts for the wellbeing of others. Apparently some sort of value judgment must be made when we undertake to classify behaviors as healthy or unhealthy.

What are the implications of this line of reasoning for the possibility of designating a whole individual (and not just a response) as mentally healthy or mentally ill? We would see such a designation to be largely a language of convenience. To avail ourselves of this convenience, it becomes necessary to decide what constellation of responses on our various dimensions will result in an individual being judged healthy or unhealthy. It is likely that there will be a variety of response combinations which we will want to designate as constituting ill health in a clinical sense. Thus, an extreme response on the scale of ability to perceive one's self accurately might be sufficient to lead to an overall designation of the person as mentally ill even if he were normal on all other dimensions. Suppose that his single deviation from accurate perception is that he considers himself to be the King of England and he expects people to behave toward him in a manner which accords with that station. Most clinical judgments would, we suspect, place such an individual in the category of the mentally ill even if he manifested no other symptoms. But a person might also be judged mentally ill if he showed no such dramatic difficulty but instead scored somewhat outside the "healthy" range on all the relevant dimensions. An infinity of response patterns are, of
course, possible and to throw some subset of these patterns into the broad category of mental illness is likely to be less useful than to distinguish a number of different patterns which are actually encountered and to attempt to learn the special characteristics and dynamics which are manifested by people who fit these patterns.

Given this conceptual approach, the notion of positive and negative definitions of mental health (mental health vs. mental illness) disappears as a subject for argument. It would be possible to discover or invent a person whose position on all dimensions was on the borderline between what is designated healthy and unhealthy. Such an individual would, in fact, be the mythical person who was without mental illness, strictly speaking, but who was by no means distinguished for his mental health. But having created or discovered this type for the sake of illustrating the uselessness of an old argument, we should find that he was no more interesting than any number of other individual types represented by other response combinations on the dimensions relevant to mental health and illness.

6. What is the relationship between physical health and mental health?

For the present, our answer to so difficult a question must be more for the purpose of stating our working assumptions than for the purpose of shedding new light upon this tremendously complex problem. Our assumption is that of psycho-physical parallelism; that is, we believe that there are inevitable connections between physical and mental events. Rather than assert that a certain symptom is psychosomatic, we assert that every experience of the individual has mental and physical components and ramifications, even though either
component may be beyond our ability to ascertain and beyond the
ability of the individual to report. Furthermore, our initial hypothe-
sis about the nature of the connectedness between mental and physical
phenomena asserts their interdependence — that cause and effect
relationships are possible in either direction.

The following example may be useful as a summary and further
illustration of our approach to mental health criteria. Jahoda
presents us with the following dilemma: take a strong man with a
bad cold. According to the view of mental health as a relatively
constant and enduring function of personality, he is healthy; according
to the view of health as a momentary function of personality and
situation, he is sick. According to our approach to mental health,
we would define this man as being at present unhealthy; that is, we
assert that having a cold constitutes an unhealthy person-environment
interaction. If this individual has many colds, especially under
circumstances which do not appear to produce colds in other people,
we can refer to him as unhealthy, at least in this respect. Similarly,
if many persons in a certain environment have frequent colds, including
persons who suffer fewer colds when they are not exposed to this
environment, we can refer to the environment as unhealthy, in this
respect. Admittedly both the designation of the individual as unhealthy
and the designation of the environment as unhealthy constitute exten-
sions of the essential datum which is that the person-environment
interaction known as "having a cold" is defined as an unhealthy interaction.
Even the designation of the act of having a cold as unhealthy involves the imposition of an external standard of evaluation. We can avoid this imposition if we restrict ourselves to such statements as whether or not a given individual has a cold at a given time, whether or not a given individual tends to have frequent colds during the year, whether or not a given environment tends to show a high incidence of colds among people who are exposed to it, and the like.

It should by now be clear what our multidimensional approach to mental health criteria involves. We wish to characterize individuals in terms of their positions on a number of mental health-relevant dimensions. Before we can locate a person on a single dimension; e.g., the dimension of aggressiveness-submissiveness, we need to (a) define the dimension, (b) demonstrate that it is in fact a single dimension rather than a combination of dimensions, (c) measure the individual in question to ascertain the point which he occupies on this dimension under specific circumstances. Suppose that we have now located the individual on the dimension of aggressiveness-submissiveness. If we wish to go further and identify the position which he occupies as "aggressive," we must then provide ourselves with some frame of reference, either on an a priori basis or by reference to a distribution of scores made by some test population of individuals. If we wish to go still further and identify this "aggressive" position on the scale as unhealthy, we must then introduce a value judgment which either labels this response as unhealthy by definition or makes the same judgment with respect to the demonstrable consequences and correlates of such a response.
If the multidimensional approach described thus far is accepted, we must now turn to the problem of how to ascertain what dimensions are to be included in the total set of criterion possibilities. How do we know, in other words, what dimensions will in sum be sufficient to trace out the individual consequences of the environment? And sufficient also to satisfy the requirements of clinicians, who are probably our best judges of what constitutes healthy and unhealthy responses? For the moment, our answer to this question is a broad and uncritical one. We wish to err, if at all, in the direction of over-inclusion. We will therefore attempt to conceptualize a set of dimensions which will potentially include everything which experts in the field have been seriously interested in as indicative of mental health or illness; that is, every dimension which has been valued by persons with specific experience in this content area. As convenient categories for these dimensions we will begin by using Jahoda's six major criteria of positive mental health although we will attempt in every case to redefine these criteria in a way that includes both the positive and negative aspects.

This process provides us potentially with a total set of criterion dimensions for assessing mental health or illness, our next problem would be the selection of a subset of such dimensions. It goes without saying that the number of dimensions which would be included on the basis just described would be far in excess of the number which could be handled successfully within our program of research. How are we to select a subset of dimensions which are peculiarly appropriate for our program of industrial mental health? We would propose the...
following bases for including or excluding such dimensions: (a) Is the dimension relevant to the industrial situation? This question must be answered partly in terms of prevalence; i.e., whether in industry we are likely to encounter people who vary significantly on this dimension. The question must be answered also in terms of preliminary evidence or predictions that the dimension in question is affected by the industrial environment or affects the behavior of the individual in the work situation.

(b) Does the dimension have theoretical relevance for us at this stage in our work? We believe that, by and large, our research contributions will be maximized if we concentrate on dimensions of mental health which we are able to relate to the industrial environment in terms of our own theoretical formulations.

(c) Does the dimension have conceptual clarity? That is, are we able to define the dimension in terms which make clear its distinctive nature and which make it distinguishable from other dimensions?

(d) Do we have reasonable prospect of being able to devise measures for assessing the position of individuals on this dimension? Or, better still, are such measures already available from our previous work or from the work of other investigators?

(e) Are there value considerations, either on the part of our research group or on the part of other practitioners in the field, which urge a high priority for this dimension?

(f) Should this dimension be included because of its relationship to some other dimension already chosen for inclusion? The purpose of this criterion is to insure that the dimensions chosen initially for our
criteria will have some integrative relationship to each other and will not be simply an array of dimensions without any special significance as a totality.

(g) Finally, our selection of dimensions should be sufficiently exhaustive so that in terms of an individual's position on different combinations of these dimensions we can define patterns which correspond to the complex syndromes which have proved useful in the diagnosis and treatment of neuroses and psychoses. It should be possible, for example, for experienced clinicians to designate the dimensions and the positions on them which would correspond to their conception of schizophrenia, depression, paranoia, etc.

In this section we will propose seven broad categories of dimensions which we consider relevant for the study of industrial mental health. The categories themselves are derived primarily from Jahoda's work; their content reflects the approach to mental health criteria described above.

**Category 1. Attitudes and perceptions of self.**

Key ideas in this criterion area include correctness or accuracy of self perception, the accessibility of the self to self examination, the motivation of the individual to engage in self examination, the effect toward the self and the sense of identity of the person.

A. **Correctness of the self concept** - This criterion probably contains in itself a number of dimensions along which the correctness or inaccuracy of self perception might be measured. The underlying idea is that it is a sign of good mental health for an individual to be realistic and objective
in his appraisals of himself. We assume that the mentally healthy individual is able to engage in some process of self-objectification such that he perceives his own attributes and behaviors free from influences stemming from his own wishes, goals, and defenses. The resulting accuracy of self perception is to be contrasted with the blurred merging of wish and reality about the self which is characteristic of persons less healthy in this respect. It is possible to think of ability to perceive accurately as part of the larger ability to perceive the real world in an accurate and objective fashion. It seems likely, however, that the special problems of perceiving the self are sufficiently important so that singling out this criterion area will be of some heuristic value.

A number of key problems confront us in moving toward research with this criterion. One of those problems in the decision regarding what attributes of the self are to be selected for measuring the accuracy of self perception. Most of the available research on this subject reports the evaluation of specific abilities of the self or performance in specific situations. Overall evaluations of the self or of enduring attributes of the self are less frequent. It seems, however, that it is accuracy in these latter respects which would be of greatest relevance to mental health. For our research on industrial mental health, we will be particularly interested in the individual's view of himself with respect to his achievements and aspirations on the job, and with respect to his characteristic ways of interacting with others.

A methodological problem in applying this criterion is that it presupposes a comparison between a self-report by the individual and some
other method of making inferences about the attributes of that individual's self. Suppose, for example, that a factory worker tells us that he has no particular wish to excel in any respect; that he perceives himself as a person whose performance is mediocre and whose aspirations make that modest performance a fact which he can observe with comfort and acceptance. Before we can make any judgment with respect to the accuracy of this self perception, we must have some other means of making inferences about this person. We may resort to observation of the individual in the work situation, in which case we are judging the accuracy of his verbal report by comparing it with our observations of his verbal and nonverbal behavior in a different situation. An alternative which has some appeal in terms of methodological simplicity would be to contrast the individual's perception of himself with the perceptions of others with whom he habitually interacts. For example, if a supervisor has told us that he perceives himself as a friendly person who gets some of his major life satisfactions out of helping other people, we would probably be interested in finding out whether this view of the person is shared by his subordinates, his peers, and his superiors in the work situation.

A different kind of data which may be introduced to provide a basis of comparison with the individual's self percept could be provided by clinical diagnosis, including psychometric and projective tests. In any case it appears that the materials necessary to implement this criterion will consist of at least two sources of information about the self: a self report and some independent information source. Our problem then will be to determine the congruence or inconsistency of data resulting
from these two sources, and to justify our inference regarding the relative accuracy of the two.

B. Accessibility of the self - We are dealing here with the ability of the person to engage in the process of self examination at will under appropriate circumstances. There is little agreement among authorities in the field of mental health as to what point on the dimension of accessibility-inaccessibility of the self should be defined as maximally healthy. Jahoda, in illustration of this disagreement, cites Barron's dictum that "self consciousness arises from malfunction" and Kubie's (1954) assertion that "in order to be healthy...the predominant forces must be accessible to introspection on need." In any case, we can postulate a scale for any given attribute which would range from absolute inability to engage in introspection to persistent and involuntary self examination.

We cannot assume that introspective ability is equally desirable for all aspects of the self. It seems likely that the range of responses that signifies good mental health will differ depending on the aspect in question. There may be certain enduring attributes of the self for which Barron's statement that self consciousness indicates malfunction is demonstrably accurate. For example, a man who spends very much time considering the extent of his masculinity may be a person with some problems in this area. However, a much greater frequency and amount of introspection may be appropriate with respect to areas of performance and interpersonal behavior. For example, the individual who casts up his accounts to satisfy himself as to whether he is being sufficiently considerate in his dealings with other people seems to us to be engaged
in a qualitatively different kind of self examination from the individual who is engaged in the inventory of masculinity.

The appropriateness or inappropriateness of the circumstances will provide another cue as to whether the process of self examination is a sign of health or ill health. The individual who, in privacy and at leisure, considers the adequacy of his performance on the job is surely different from the individual who finds himself engaging wildly-nilly in the same process at a time when his introspecting serves to reduce further the very performance about which he is concerned.

C. Affect toward the self - We have defined this criterion as representing the extent to which the person can accept the self he perceives, accepting his acts and his attributes without self hatred, loss of self esteem or undue guilt. This is a criterion area which seems to us to contain some crucial, but seemingly contradictory, ideas. We have asserted that the individual should be able to perceive his self objectively. This certainly means that he will be able to perceive the deviations of the actual self from the ideal or aspired self. Such a perception of deviations represents a kind of failure experience and must certainly be the occasion for regret or disappointment and for some form of adjustment. If the individual's acceptance of his failures and shortcomings is utterly painless and complete, we would be inclined to consider this not as an evidence of ideal mental health but as an indicator that he is complacent and unlikely to attempt seriously any improvement in himself. On the other hand, if he reacts with bitter disappointment and self castigation, at what point shall we judge him to be a victim of self hatred, to be suffering from loss of self esteem and, in that degree,
to be mentally unhealthy? We are inclined to argue that it is healthy
to experience disappointment or even hatred for acts which fall short
of one’s major aspirations. But perhaps we can distinguish hating
the act from hating the actor. Ultimately, the healthy person will
come to terms with himself by bringing his performance closer to his ideals
when it is within his power to do so and, in the interests of self
acceptance, lowering his aspirations when they remain beyond his power
to attain.

D. Sense of identity - Jahoda comes to the conclusion that the most
general meaning of this phrase is "a global, benevolent view of the
whole self, a positive feeling that pervades and integrates all other
aspects of the self concept." We have in mind a use of the term which
represents a more literal use of the phrase "sense of identity." We
assume that the sense of identity originates at that stage of infancy when
the child begins to differentiate himself from his environment, and that
it develops as Erikson suggests (1950) from all the experiences of each
successive stage through which the individual grows. One test of the
individual’s sense of identity would be the constancy with which he
perceives attributes of the self in a number of diverse situations.
There are persons for whom each success imparts feelings and self
perceptions of perfection and invincibility and for whom each failure
creates self perceptions of worthlessness. One test of the extent to
which an individual has developed an adequate sense of identity would
be the stability of his self percept under conditions of stress and failure.
Another indication of the person's sense of identity would come from the sharpness and completeness of his perception of himself. We would assume that the individual who somehow "does not know" whether he is graceful or clumsy, honest or dishonest, highly intelligent or relatively dull is somehow lacking in this sense of identity.

Finally, we would seek evidence for the individual's sense of identity in his ability to locate himself in social space. We mean by this the ability of the person to sense accurately the impact which he makes upon others and the way in which his perception of himself compares to the perceptions which others have of him. The person with the well developed sense of identity will maintain a stability of self percept in spite of the conflicting social judgments about himself which he may encounter.

A problem yet to be resolved lies in the rigidity which is implied by this emphasis on stability as a factor in a well developed sense of identity. We do not wish to imply that the healthy individual's sense of himself is unchanging regardless of the circumstances. The person and the self do change -- physiologically and psychologically -- as the life cycle progresses. The dramatic changes during childhood and adolescence occur at a time when the sense of identity is still in formation and many practitioners would agree with Erikson that a sense of self diffusion "is unavoidable at a time of life when the body changes its proportions radically." Change continues in mature years, albeit at a slower rate, and the sense of identity of the healthy person adjusts to the role changes and physiological changes of increasing years. The often-heard admonition to "act your age" reflects the very general appreciation of this adjustable requirement.
(NOTE: The criterion of affect toward the self requires further definition, especially in terms of specifying what affective dimensions are relevant. An individual may entertain affect for his self along the dimension of like-dislike, righteousness-guilt, pride-shame, etc.)

Category 2. Growth, development and self actualization.

It seems to us that the most important aspect of this criterion area is the dynamic. The key idea involves the question of whether the individual is growing, developing, realizing his potentialities. We may also ask, however, to what extent the individual has already attained a state of self actualization; that is, to what extent he has already grown toward the limits imposed by his natural endowment. When we attempt to devise measurements which take account of the dynamic character of these concepts, we are faced with some difficult methodological problems. We may set up longitudinal research designs which permit the comparison of an individual at two points in time, so that we may infer the extent to which he has grown along any relevant dimension. An alternative procedure is to rely upon the memory of the individual himself or upon the memories of others who have had an opportunity to observe him, and to ask them to report the extent to which the individual has grown during the designated time interval. A third possibility, although one which poses some additional problems, would be to get the current perceptions of the individual and of observers regarding the apparent rate of growth which he is manifesting. The additional dangers inhere in our attempts to extrapolate from these momentary observations of rate of growth, even if the observations themselves were accurate.
Additional problems must be solved also at the conceptual level, especially in choosing the dimensions along which growth and self actualization are to be measured. Some of the relevant dimensions have already been specified in the preceding section. We would be particularly interested in the extent to which the individual has grown in his ability to scrutinize the self at will and under appropriate circumstances, in the area of affect toward the self, and his sense of identity.

Another area for measurement will be the extent to which the present needs of the individual are being satisfied. Other things being equal, we assume that the level of self actualization of a person whose environment denies him satisfaction of certain basic needs is less than that of an individual with the same need structure who is more fortunately situated. In attempting measurements of such need satisfaction we should rely in part upon the individual's statement of needs which are dominant for him. It will also be useful to utilize some category system of human needs in order to facilitate comparison among individuals. It seems likely that the need hierarchy proposed by Maslow will be especially useful in this connection, especially if we can assume that satisfaction of ascending needs in the hierarchy constitutes evidence of increasing actualization of the self.

We will also measure individual growth in the area of long-range aspirations. We consider it a criterion of mental health for the individual to extend the self and goals for the self in time. It is, of course, easier to specify this dimension than to argue successfully what the point of maximum health on the dimension should be. Within the value structure of some fundamentalist religious creeds, for example,
the individual who is able to defer major gratifications to the life after death qualifies as having made the most appropriate adjustment to this life and is, presumably, the most healthy. In terms of other value systems, any deferment of immediate gratifications would be considered neurotic, and deferment beyond death would be evidence of deep maladjustment. We assume, nevertheless, that a complete inability to make postponements, along with realistic plans for achieving the ultimate need satisfactions, is a sign of immaturity, and in this respect at least an evidence of failure to adjust and to achieve a full actualization of the self.

Another evidence of growth is the differentiation of goals and aspirations, contrasted to restrictions and narrowness of aspirations. Again, this seems to be a criterion area which will be useful to us only when it is used with certain explicit value assumptions. In terms of an ascetic philosophy, the individual who has made the most successful adjustment to life has restricted many of his goals and aspirations. We would not consider any proliferation of goals to be healthy, but with appropriate qualifications as to content and extent, we consider the continuing acquisition and development of new goals and aspirations for the self as one criterion of self actualization. We refer not simply to the accumulation of new goals within a single narrow category, but to the development of aspirations of new kinds. A wealthy man who revises upward his financial aspirations has probably done little for his self actualization compared to what he might have achieved by resolving to learn a new language, acquire a new skill, or develop an active interest in local government.
We have seen that the criterion of self actualization involves the extension of the individual's aspirations and activities in many ways. We have already discussed the extension along the time dimension and that more general extension which we have referred to as differentiation. There are at least two other kinds of extension which we should mention specifically. One of these involves again the concept of some hierarchy of needs perhaps beginning like Maslow's with those needs which involve the physical survival of the organism and continuing through such ego requirements as the need for variety and new experience, the need for the esteem of one's fellows, etc.

Somewhere well up in such a hierarchical array of criteria reflecting self actualization will be what Jahoda, borrowing Mayman's phrase, calls "investment in living." Here the major criterion is the extent to which the individual has become involved in goals which go beyond immediate self gratification. We would be interested in his involvement in work, in his feelings of loyalty and commitment to other people, in his personal investment in organizations which embody his ideals, and in his commitment to certain ideals in the abstract. We are asserting, in other words, that the individual who has developed and continues to develop ego investment in persons other than himself, who becomes concerned and involved with progressively larger and more distant groups of people is a more fully actualized individual for having done so. The logic of this position would say that the truly actualized individual would tend to be a person who is fully concerned with all mankind, with the human condition. It is perhaps unnecessary to point out again the extent to which an implicit value system is reflected in the definition of these
criteria. By what ethic do we assert that the individual who loses himself in his work has achieved a greater actualization than the individual who loafs and invites his soul? This is a judgment which we need not yet make. It is sufficient for us to be aware of the fact that this criterion will ultimately involve such a value judgment. For the present we need only assert the relevance of this dimension for mental health; we need not point out the range on the dimension which will be considered maximally healthy, or even maximally self-actualizing.

Category 3. Integration.

In our thinking of the criterion area of integration we have felt that the central idea is both important and simple, but that the proper working out of this central idea in conceptual terms is extremely difficult. By integration we mean, literally, the oneness of the individual, the extent to which his goals and aspirations, his attitudes and life's activities reflect an underlying unity and harmony. The machine analogy would lead us to speak in terms of the amount of internal friction which characterizes a mechanical system, the extent to which the energies of a system are available for achievement in comparison to the extent to which the energies of the system are spent in trying to overcome its own internal friction or the inadvertent generation of counter forces. Many authors have worked with the criterion of integration, calling it by this name or by another, and a variety of approaches to this criterion are available to us at some partial stage of development. Those that appear worthy of additional exploration are the following:
A. The psychoanalytic concept of integration would consist primarily in an appropriate balance among the forces of ego, superego, and id. Kubie's definition of integration as the achievement of balance among unconscious, preconscious, and conscious seems to be essentially a similar notion. Several approaches appear feasible for the measurement of integration in this sense. One approach would rely on determining the extent to which the person is aware of the values, goals and motives which determine his own behavior. For example, the individual who insists that he feels no hostility toward others, but who is seen by others as hostile, whose behavior appears to observers as hostile, and who shows responses to projective tests indicating hostility would seem to be dominated by unconscious motives, and to that extent would fall short of successful integration.

Another approach to measuring integration would rely on asking the individual for explanations of his own behavior. The inference would be that the person dominated by unconscious and preconscious forces will persistently find that his own behavior is unintelligible to him. He is the individual who is likely to say, "I don't know why I did that." This approach leaves us with the difficult residual problem of distinguishing the sophisticated rationalizer from the genuinely integrated and self-aware individual.

Still another approach to measurement in this criterion area is suggested by Kubie's statement that a successful integrative balance is likely to be manifest in flexibility. He contrasts this flexibility with "the freezing of behavior into patterns of unalterability that characterizes
every manifestation of the neurotic process." The key idea here seems to be over determination of an act; that is, neurotic behavior of the person is determined by forces in addition to those which are appropriate or situation-generated. The example comes to mind of the person who has a compulsion to wash his hands. The compulsion is a neurotic process and the hand-washing is determined in part by forces of which the individual is unaware. This signifies an over-balancing of conscious processes by unconscious forces. Kubie's notion of inflexibility suggests one approach by which this over-determination might be measured. If we observe an individual over a period of time during which the situational requirements for an act are removed, we can then base our judgment on whether or not he continues to perform the act even after the elimination of situational necessity. The measurements here might be very simple. For example, does the individual continue to wash his hands after they are no longer dirty?

For other kinds of behavior this measurement approach may be impractical because we may be unable to define a point at which the behavior is no longer required by the situation. Consider for example the wealthy person who gives consistently to charitable enterprises. Kubie's definition of integration would lead us to be interested in whether the philanthropy is motivated by an extension of the self, interest beyond self-survival, and love of mankind or whether it is motivated primarily out of guilt feelings. However, since the situational need for philanthropy is never satisfied in the sense that the objective need for washing one's hands may be satisfied, it may be very difficult
to discover when the philanthropic behavior is appropriately determined and when it is "over-determined." This, however, is a methodological difficulty. In conceptual terms we would make the distinction on the basis of the automatic repetition of any act irrespective of the situation, the utility and the consequences of the behavior. (It is worth noting that while the giving of charity out of motives of guilt of which the individual is wholly or partially unaware may be unhealthy in terms of integration and self awareness, it may be a healthy behavior in terms of the individual's having found a socially accepted and successful technique for coping with a deep-seated personal problem.)

B. A second broad approach to studying the integration of the individual concentrates on the extent to which he has achieved a unifying outlook on life. This can be determined in part through self-report. He can tell us the extent to which he has some notion of "his place in the scheme of things" he can discuss his conception of the world and the basic truths which he believes about people, about things, and about life. If we can distinguish between mere sophistication and a genuine sense of having located oneself in the stream of life, we will perhaps be getting at this aspect of integration.

The achievement of a unifying outlook on life, however, should be manifest in behaviors other than verbal report. The individual who has achieved such unity should be able not only to state his ultimate values and goals but to relate his own acts successfully to these values and goals. He should possess and be aware of "autonomous master sentiments which give meaning to all of his attitudes and activities." Moreover,
his behavior should be sufficiently reflective of this inner organization so that others can infer the values which his self report asserts.

In terms of the concepts which we propose for the study of role conflict and ambiguity (Chapter V) the key questions here would be whether the individual has developed an adequate core identity; whether each of his subidentities is compatible with this core; and whether each subidentity is compatible with the other subidentities. If these three propositions can be successfully tested, we shall be getting at the central idea of integration.

An aspect of integration which Jahoda discusses is resilience, or resistance to stress. It is not yet clear to us that this is different from the concept of flexibility which we have already discussed. There are, however, a number of measurement possibilities for getting at resistance to stress and these perhaps should be noted here. We can determine the ability of the individual to tolerate frustration by discovering whether he is able to enter and remain in a situation which is frustrating for the sake of a countervailing gratification, either present or future. A second question would be whether the individual who is able to remain in a frustrating situation under these circumstances can do so without disruptive personality manifestations. For example, can the worker who elects to remain in an unpleasant work situation because it offers economic security and a relatively adequate level of living for his family keep the bargain which he has made without displacing on to his nonwork relationships the negative affect which has been generated in the work situation?
Can an individual remain in a presently frustrating situation for the sake of a future gratification? This kind of behavior is frequently demanded in industrial organizations. The role of trainee or apprentice, for example, can be successfully played only by an individual who has some measure of this capacity.

Category 4. Autonomy.

The major idea in this criterion area involves the distinction between external forces and internal or "own forces" as determinants of behavior. Autonomy involves the definition of certain aspects of the individual's relationship to his environment, especially at moments of decision making. The simplest definition of an autonomous act is one which is carried out in response to some direct, internal motive force rather than in acquiescence to some external requirement. There are, however, a number of additional specifications which would be relevant in determining the extent to which an individual was behaving autonomously. These can be stated in terms of the following questions:

Is the individual aware, or unconscious of, the internal motives which influence him at a particular decision-making point?

Are the external forces which act at this point of decision making represented by other persons in the immediate environment who are attempting to exert influence on the actor or are the external forces encountered in the more impersonal form of "situational requirements"?

Is the internal motivation of the individual related to some stable standards which he has for his own conduct, or is it apparently a less explicit and more capricious motive pattern?
If the individual is acting out of internal motives, is he confident of them, content with them and the standards which they reflect?

Can the individual bring his internal motivation into dominance at will? That is, does the individual experience some freedom to decide between acting on the basis of his own forces and on the basis of external forces?

Is the individual free from undue anxiety about the social consequences of acting in accordance with his own motives?

Does the individual have the ability to tolerate his own deviant position?

(These questions suggest that the relationship among our various criteria of mental health will probably turn out to be very complex. For example, an individual might show great autonomy in decision making but little awareness of the motives which prompt his autonomous action. As a result, his position on the scales of self-awareness and on the scale of flexibility might be very low.)

It seems likely that the optimum position on the scale of autonomy will represent some compromise between blind conformity and isolating nonconformity. For any individual, what that compromise should be will depend upon the penalties for nonconformity and the centrality of the issue at stake for the person. We will be interested in the terms in which individuals reach such compromises and in their ability to maintain a deviant position without disintegrative effects on the self and without the displacement of negative affect on to other relationships.

It seems likely that our major opportunities for measuring the
autonomy of an individual will occur in situations, natural or contrived, in which the individual is confronted with a decision involving an internal-external conflict. The experiments of Asch (1952) on social conformity, which are already classic in the area of social perception, well illustrate the kind of research design which permits inferences about individual autonomy.
Category 5. Perception of reality.

There are two major ideas for us in this criterion area: the ability of the individual to perceive reality without distortion by his own needs, and the ability of the individual to empathize with others. Some of our thinking on the criterion of perceiving reality in an undistorted fashion has already been described in the section on Attitudes and Perceptions of the Self. In this present context we wish to extend the measures of perceptual accuracy to include not only the self but other significant persons and impersonal objects and forces in the environment. So far as self perceptions are concerned, we will especially be interested in the ability of the individual to report accurately attributes of the self which are central to his sense of identity and his system of values. The underlying assumption here is that the tendency for perception to be distorted by individual needs will be maximized when the perceptual content is central to the self. This suggests the possibility of ordering individuals on the dimension of perceptual accuracy by measuring the extent of their distortion in reporting attributes which are successively more central for the person.

In addition to self perception, probably the most important area in which to measure perceptual accuracy is that of interpersonal relations. Here we will be interested in the accuracy with which the individual reports the impact of his behavior on other persons, his report of the behavior which others manifest toward him and the way in which he is perceived by others. We will want to know the importance
of these other persons for the individual, on the assumption that the need to distort reality will be maximized when the individual is reporting the behaviors and opinions of persons whose esteem he particularly wants to enjoy.

We will also want to measure the individual's ability to perceive reality in terms of his assessment of different situations which confront him. For example, does the factory worker who has feelings of insecurity at the prospect of promotion to a supervisory position tend to underestimate the objective possibilities of his selection for such a position? More generally, to what extent does an individual tend to perceive as not feasible any course of action which would constitute a threat to the self? Our assumption would be that the mentally healthy person would be able to perceive accurately the feasibility of a course of action even if he had ego-deflating reasons for not electing that course. A closely related area in which perceptual accuracy can be measured is the area of calculation and prediction of future consequences, a subject on which much insightful work has been done by Herbert Simon and his associates. Assuming equal access to information sources and equal intellectual ability, the predictions of individuals about the probable outcome of a given course of action might be very revealing of their ability to perceive reality. To what extent, for example, does a person find it necessary to deprecate and predict failure for a course of action which he has rejected for any reason.
In the same way that the ability of the individual to perceive himself accurately can be looked on as a special area of the broader problem of reality perception, we may also mark out for special attention the ability of the individual to empathize with others. By empathic ability we mean being able to take the role of another person and, having done so, to experience in some degree the thoughts and emotions which are his. In the work situation the opportunities for demonstrating empathic ability are many and the rewards and penalties involved are great. We might ask an individual how certain other persons in his environment feel about major issues which concern them, and what they strive for in the work situation. We might ask him how other persons react to his behavior and how they perceive the reality which surrounds them -- a reality of which he is an active part. These perceptions would be validated by the reports of others. It will also be useful to get some indication of the individual's empathic ability by questioning others about their reactions to him. Do they perceive him as understanding, sympathetic? Do they think that he has a real knowledge and feel for their situations and their problems? The ability of the empathic person is presumably observable to others.

**Category 6. Environmental mastery.**

Our major approach to this criterion area will be in terms of the performance of the individual in his major life roles. These will, of course, include the generally accepted abilities to love, to work, and to play. Adjustment to any of one's major roles is, as Gurin and his colleagues (1959) have suggested, a highly complicated human
experience. Such an adjustment involves a large number of complex psychological response patterns and probably includes major aspects of all the criterion areas which we have discussed. We will concentrate, of course, upon the work role, but we will be importantly interested also in the individual's behavior as marriage partner, parent, friend, and in the roles which he plays as a member of various organizations and groups.

In each such role we will be concerned with a number of dimensions. One of these is the dimension of gratification; to what extent is the individual's participation in the role a source of psychological return to him? Another relevant dimension will be the ability or adequacy with which the individual performs in the role. Here we will be interested in his self report, also in the report of others with whom he interacts in the performance of the role, and his role performance as measured by some more general standard of what is socially approved or disapproved. For example, in order to assess an individual's adequacy as a parent we would obtain information from him, from his wife, from his children, and perhaps from other persons such as teachers who have some special observational contribution to make. To assess the individual's adequacy in the work situation, we would again require data from a number of sources, including his self report, the opinions of his supervisors, the opinions of his peers and subordinates, and, if possible, some more objective data about his performance (absence records, quality control data, time study data).

Our assessment of an individual's success in mastering his environment, however, will not be restricted to observation and analysis
within roles. We will be interested as well in the extent to which the individual is able to perform with satisfactory results for himself and others in a variety of roles. The person who achieves a spectacular success in a difficult career, but whose vocational success is complemented by a meager and ungratifying family life is certainly mastering his environment in a different fashion and in a different degree from the individual whose adequacies and gratifications are more balanced between the two roles. Again, it seems to us to require a value judgment if we are to announce whether temperate achievement in all of one's major life roles is more desired for the individual and society than outstanding achievement in fewer roles.

In any case, the interrelatedness of roles and of the psychological consequences of the experiences encountered in different roles will be one area of emphasis in our study of industrial mental health. It is possible to imagine the work role being so defined and structured that it increases and re-enforces the ability of the individual to perform in other roles and to receive gratification from them. Alternatively we can imagine a work role so defined that its psychological consequences for the individual's adequacy and gratification in other roles might be likened to the indiscriminate flooding of the community with industrial waste products.

**Category 7. Symptoms.**

Our general approach to the use of psychosomatic symptoms as a criterion of mental health is described in the proposed research on certain symptoms which is described in Chapter V. The assumption of
psychophysical parallelism which we have already made explicit, implies that in theory the criterion area of physical symptoms would serve merely to identify certain correlates and consequences of psychological factors already included in one or another of the preceding six criterion areas. The number of unsolved problems with respect to the determinants and consequences of physical symptoms is so great, however, that we feel it important to include such symptoms as a separate criterion category. We will attempt, wherever possible, to link the presence of such symptoms to specific factors in the environment and to specific psychological states of the individual.

Present theories about such connections are characterized by a great deal of disagreement. Selyé, for example, asserts that there is a common factor of stress and that the somatic response to stress may take any one of an almost infinite number of forms. Dunbar, perhaps representing the other extreme, asserts that certain experiences and certain kinds of stress almost invariably translate themselves into certain specific physical outcomes. Our own intention is to test some of the propositions linking stressful experiences and specific physical responses where the theoretical basis for the linkage appears to be promising. At the same time we will endeavor to include measures of a variety of possible physical responses, so that the question of how psychological processes and physical processes are related will be attacked in a rather broad and exploratory fashion.

There are other facts which recommend the inclusion of symptoms as a criterion area. Research already done (that of Srole, for
example) has emphasized the prevalence of such symptoms. The presence of individuals with such symptoms in industry is rediscovered daily. Moreover, the medical records of some companies provide useful data on symptoms which have been reported by employees over a long period of years. Some psychosomatic diseases have already been studied intensively with respect to the industrial environment. These include ulcers, hypertension and cardiovascular diseases, rheumatoid arthritis, and others. We have an opportunity to build on this research by making clear some of the interrelations among psychosomatic diseases as reported by large industrial populations, by contributing to the solution of the problem of specificity vs. non-specificity of somatic responses to stressful situations, and by studying the relation of psychosomatic symptoms to the other criteria of mental health which we are employing. In this latter respect some highly interesting research findings have recently become available, for example, the possibility of an inverse relationship between schizophrenia and rheumatoid arthritis.

At various points in our discussion of criteria for mental health we have considered the possibility of different kinds of relationships among the various criteria which we propose to employ. It may be useful to conclude this discussion by attempting to summarize the types of relationships among dependent variables which we envision as possibilities to be proved or disproved by empirical research:

1. Two or more dependent variables may be positively correlated because they are dependent upon the same environmental factor.
2. Two dependent variables may be negatively correlated because they are related in an opposite fashion to the same environmental (or personality) factor. (Methodologically this relationship is simply relationship #1 with the measurement scale reversed.) For example, an employee whose performance is inadequate on the job may react to a frank appraisal interview with his superior by showing considerable improvement in his perception of reality but considerable deterioration in his affect toward the self.

3. One dependent variable may be a cause of another dependent variable. For example, negative affect toward the self may come to be manifest as a psychosomatic symptom.

4. Two or more dependent variables may be phenotypes of the same genotypic variable.

5. There may be clusters of variables or criterion factors which correspond to some major syndrome of mental health or illness and which have some complicated set of relationships among themselves. For example, clinicians speak of a state of well-being. There may be some pattern of relationships (or many possible patterns of relationships) among dimensions in our criterion areas which in combination define a state of well being. The same might be true for paranoia, schizophrenia, or acute anxiety states.
**Next steps.** Our work on mental health criteria during the coming year should include the following steps:

1. **Specification of the dimensions which are necessary to comprise each of the major criterion areas described above.**
2. **Selection of those dimensions which have particular relevance to the industrial environment.**
3. **Development of measures to assess the position of individuals on each such dimension.**
4. **Exploratory work on relatedness of such dimensions and of the criterion categories themselves.**
5. **Initial work to relate this multi-dimensional approach to the categories of mental disease proposed by the American Psychiatric Association.**
Chapter III
A CONCEPTUAL APPROACH TO THE INDUSTRIAL ENVIRONMENT

To study the effect of the industrial environment on mental health, it is necessary to identify the principal characteristics of this environment, and to translate these into a conceptual scheme which will allow us to relate an individual to the complex system and sub-systems in which he is embedded. No individual is a free agent. Each plays a variety of roles in a large number of groups and large scale organizations in our highly integrated, industrial society. A given individual may be a worker, a steward, a husband, a father, an elder, and a member of several voluntary associations. To understand the impact that these various work, home, recreational, and community environments have on the individual a broad approach to the conceptualization of these environments must be developed. It is the purpose of this chapter to present a first statement of our conceptual approach to this multitude of environments.

A review of the literature concerning the relationship between the individual and his social environment indicates that a good deal of systematic theory building remains to be done (Argyris, 1957; March & Simon, 1958; Cartwright & Zander, 1953; Krech & Crutchfield, 1948; Newcomb, 1950; Barker & Wright, 1954). One of the principal objectives of our research program will be to develop systematic theory capable of relating the individual and the organization. Sets of basic concepts will have to be defined at different levels of conceptualization which will be appropriate for handling individual, small group, organizational, and societal phenomena. It will be necessary to distinguish carefully among
concepts at different conceptual levels, and to define the interrelation­ship among different levels wherever possible. At any given level we will be concerned with various "conceptual types "(Lewin,1951,pp.37-41). In all cases we shall try to state the minimal conceptual dimensions necessary for defining a construct. In some instances we may state additional conceptual dimensions which may be thought of as descriptive but not defining characteristics.

Our research objectives require that we conceptualize the environments in which we are interested at least at two levels: (1) the objective group or organizational level, and (2) the psychological (life space of the individual) level. Our concern with the effect of the industrial environment on the health of the individual requires that we develop concepts and measures of objective ("out there") social space that can be conceptualized in terms of the psychological environment within the individual's life space.

While we will concentrate the development of our conceptualization on the large scale organization -- for reasons that will be seen in the next section -- we will attempt to pitch our theory and concepts at a level which will also be relevant to small face-to-face groups.

As we have indicated in Chapter I, our basic paradigm is that behavior is a function of both environment and person. At times we will be concentrating on one or the other of these two major components of this formulation -- environment or person. In this chapter we will be primarily concerned with the contribution of the environment to behavior. We will focus on the behavior of a person because of his occupancy of an office in an organization (role behavior). ¹

¹ The concept "organizational behavior" we will reserve for use as a supra individual level concept which relates to the activities of an organization as a whole.
chapter, we will focus on the behavior of a person which has its origin in the basic personality structure of the individual (personal behavior).

The Mid-20th Century American Industrial Society

A general description of the principal characteristics and basic trends underlying our American industrial society will provide a common framework for understanding our interest in focusing on the large scale organization as one of the principal factors affecting mental health. It will also suggest why we are primarily concerned with the individual in his work role rather than as a father, a husband, or in one of his other roles.

Different writers emphasize different facets of the American scene. There is however a good deal of agreement about the principal characteristics of our society (Angell, 1941; Gerth & Mills, 1953; Williams, 1952). It is a society that is described as "scientific," "organizational," "secular," "associational," and "mass."

A "Scientific" Society. One of the principal features of our society is the rate at which it is changing. The ever more rapid accumulation of scientific knowledge provides the basis for technological innovation and new industrial applications. These in turn alter the daily life of the worker and the systems in which he is embedded. This rapidity of change puts both the individual and the primary face-to-face groups in which he holds memberships in an unstable social order. The loss of basic social anchorages probably have a marked effect on the level of mental health in the society.
An "Organizational" Society. New technology requires large capital investment. Large capital investments in mass production equipment require centralization of work activities, complex and tightly structured sub-systems of relationships, and coordination. It is these demands of our scientific society which have resulted in the transformations of the social environment into an environment of large scale organizations and associations. More and more these highly formalized structures occupy a significant position in our society.

The need for control and high predictability regarding the behavior of personnel in organizations leads to formal, functionally rational forms of organization. These bureaucratic forms have a number of typical characteristics. These include (1) purposefulness -- they are designed to attain specific objectives, (2) an explicit definition of activities, offices, and functions -- these have their basis in a highly rational division of labor, (3) a high degree of formalization of rights and duties -- these are attached to the office, not the occupants, and are the basis of the authority and responsibility structures, (4) a comprehensive structure of rules and regulations for categorical handling of internal and external problems, and (5) a relatively explicit system of rewards and sanctions.

This type of organization is designed to obtain functional rationality, coordination of activities across a wide number of offices, and the minimization of personal activities irrelevant to the purposes of the organization. It results however in increasingly circumscribing and restraining the individual. As our society becomes more and more an "organizational society" there is increasing subordination of the individual to organizations.
A "Secular" Society. The scientific method with its emphasis on observation rather than tradition, causality rather than indeterminacy, has led to a questioning of established institutions and uncritical, conventional ways of doing things. As rationality and secularity have become key concepts, there has been a gradual decline in the importance of kin-centered organizations into which one is born and has deep social roots and a concomitant rise in organizational affiliations that are voluntary, function-oriented, and contractual.

Secularism itself leads to rationality in social organization. Systems of action are designed in terms of effectiveness and efficiency. Models of organization become more machine-like; the relationships between people more impersonal, more categorical. The primary orientation is utilitarian. The market and money epitomizes the principal forms of exchange among people.

An "Associational" Society. Increasing division of labor and specialization leads to the growth of many social groups with different interests and perspectives. This tendency toward the proliferation of groups is speeded in a democratic system that encourages the constitutional right of petition. It results however in a large number of "free standing groups."

Societally the burgeoning of associations brings sharper separation of organizational systems, more conflict and competition among groups, and a greater need for mediating and coordinating organizations. Individually, it results in marked role segmentation, more opportunities for participation in groups, more freedom from demands of principal groups, and continuous competition for the limited time and energies of the society's members.
The "Mass" Society. A number of writers point to the growth of non-institutional forms in which individuals are only loosely bound together in activities which are marked by ephemeral, impersonal, and segmental relations (Mannheim, 1949; Young, 1949). Two examples are the recreational patterns of our society and the political institutions. In both of these there is mass involvement without multiple levels of organization between the individual and points of major decision-making. For the individual, the mass society means isolation, freedom from social bonds. For the group, it means a high incidence of group formation and disbandment. One of the major anomalies of our society appears to be the simultaneous growth of non-institutional collective behavior and large scale bureaucratization.

It is evident from these brief descriptions that the individual is caught in a number of different cross pressures in our industrial society. While the work organization plays an ever more important role in his life, an increasing number of other groups and associations are competing for his interests and energies.

The environment of the individual today is an environment of organizations -- organizations with purposes that may or may not coincide with individuals' needs and goals, with offices and activities that may or may not match the composition of an individual's capacities and skills, organizations which are concerned with only a part of the individual -- those competences required to perform the prescribed functions in an impersonal, explicitly defined manner. When the individual is not performing the activities expected of him as a member of a work or special interest association, he is a component in the mass society -- only
peripherally involved in activities. Moreover, whether he is at work or at play, he is a member of a secular, urban society demanding rapid adjustments to change.

The Organization

The dominant feature of the American industrial society is the complex, formal organization. As a type it is ubiquitous for it ensures coordination and predictability in not only business, industry, and government, but in labor unions, universities, hospitals, prisons, philanthropic and voluntary associations. The role played in the whole society by large scale organizations has expanded so rapidly since the turn of the century that they increasingly overshadow other forms of interaction within the family or the local neighborhood.

What is an organization? Our definition of an organization should properly depend on our purposes, so it is worthwhile to state at the outset these purposes. First, we aim to describe the organization, as an important part of the psychological and of the objective environment, in terms which will be relevant to mental health. Second, we hope to make a contribution to a more general systematic theory of organizational behavior. Here, too, the organization is conceived of as a part of the person's environment. Finally, it may be useful to note that it is not our immediate purpose to describe the best organizational structure, to advise administrators of organizations, nor to contribute to other practical problems of organization. We hope to contribute to a basic science, not an applied science, and hence our approach will differ from the theories commonly found in business administration (Dale, 1952; Urwick, 1953), military
science (Brown, 1945; Brown, 1953), and similar applied fields (White, 1953). Thus we shall be less concerned with values, more careful to avoid prescriptive statements, more concerned to construct our concepts from more basic concepts (see Chapter I on the method of construction), less global and more analytic in our concepts, more concerned with the exact definition of concepts than with adequate coverage of all phenomena, and especially will we be concerned to know just how each concept fits into the total system of concepts we will be using.

This system already prescribes that we must conceptualize both the organization in the life space of the individual (E) and in the space outside of the individual (H). In order that these two types of organization shall not be confused with some of the applied theories of organization, we shall also define a third type as the "ideal plan of an organization." The latter exists in the phenomenal field of some person. Ordinarily this ideal organization, if it has any influence at all, will have direct influence only on the objective H-organization, which in turn will influence organizational behavior only indirectly via its influence on the E-organization. We may diagram these causal relations among the three types of organization and organizational behavior as follows:

<table>
<thead>
<tr>
<th>Ideal Plan of an Organization</th>
<th>Objective Organization</th>
<th>Life Space Organization</th>
<th>Member Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>(IO)*</td>
<td>(HO)</td>
<td>(EO)*</td>
<td></td>
</tr>
</tbody>
</table>

An example of what is involved in our model in this chapter in terms of the communication dimension (this will be described more fully later) is as follows:

* These abbreviations may be employed subsequently to speed reading and ensure there is no doubt about the level of concept being used.
Communication Channels

The ideal-plan communication channel, as it exists in the mind of a principal corporate officer, about who ought to communicate with whom sets up pressures to change communication channels (e.g., a notion about the formal procedure for communicating a grievance).

The objective communication channels in turn consist of social pressures on occupants of offices to communicate in certain ways (e.g., sent role prescriptions regarding what the grievance procedure is once it has been formalized.)

This affects the life space communication structure — the conscious and unconscious structure of psychological forces which exist in the life space of the person about actual communication patterns. These in turn determine —

The individual's communicative behavior as a member of an organization.
In dealing with organization, we shall thus be using three different sets of concepts, at varying conceptual levels. Before proceeding to a fuller discussion of our concepts regarding organization (we shall build that part of our discussion around the H-organization), we shall describe each of our three levels a little more fully.

**IO - the ideal plan organization** is a cognitive structure of what ought to exist in an organization. It includes normative conceptions, evaluations, and plans of what an organization should be or might become. As indicated in our example, the IO exists in the mind of an architect of the organization. Whether or not the ideal plan actually affects the objective organization will depend on who has the plan. If it exists as a firm intention of the president, then a corresponding reorganization of the objective organization will probably take place; but if it exists as a wish of a person with low power, then it will probably not be effectuated.

Usually we will not be concerned with the ideal plan of an organization, at least to the extent that it is not actualized. We include it mainly in order to distinguish between the objective organization and some of the concepts in organization theory which include prescriptions concerning what organizations ought to be rather than descriptions of what it actually is. Especially in military science and in business administration, the ideal plan of an organization concentrates only on the so-called "formal organization" and leaves out all the aspects of informal organization. Thus, a proposed table of organization will show the division of labor, the formal authority structure, and very little else. We are most likely to be interested in this concept of an organization when we are studying organizational change; and in this case, we will, of course,
be most interested in the ideal plans of organization which exist in
the minds of those members who have the most power to effectuate their
plans.

**HO - the objective organization** has an objective existence out there
in the real physical and social world. Its existence is independent of
whether or not, or how, a given person P perceives it.

It consists of buildings, machines, materials, and real property,
money, human organisms, and other objects in the real physical world.
But it also consists of goals, activities, roles, authority structure,
etc. It thus exists as shared cognitive structures and as patterns of
interaction and behavior which exist in the objective social world. Like
other parts of objective reality for the scientist, the objective organiza-
tion is partly perceived directly and partly inferred. These inferred
parts of an organization are no less real than the observed parts, in
fact they may be more real, according to our assumption that what is real
is what has effects. It is mainly these latter social objects and rela-
tions which are difficult to define objectively, and we shall therefore
concentrate our definitional and conceptual work on them in this chapter.
All of them exist in H, the foreign hull of the life space of P; some but
not all of them get into the E, the psychological environment of any
single P.

**LO - the life space organization** is a structure which exists in the
life space of the person and reflects several of the properties which exist
in the objective organization. It includes both conscious and unconscious
impressions of the objective organization which get into the psychological
environment (E) of the individual. The conscious and preconscious parts of the life space organization will be defined as the perceived organization (LPO - the life space-perceived organization).

From these definitions it is obvious that for each objective organization, there are as many life space organizations as there are persons, and there may be big differences among these life spaces. The life space organization of P₁ may include P₁ (i.e., he is a member) or not, but the non-member case will not concern us. The life space organization has such conceptual objects as buildings, people, goals, policies, received roles, received norms, etc., and such relations as perceived authority structure, sociometric relations, work flow, etc. These will vary especially with the role of P, as has been demonstrated in the study of Argus (Zajonc, 1959). Some of these parts and relations, such as the power structure, may not be consciously perceived at all by P₁ or they may be perceived in distorted form. However, so long as they affect his behavior, they are parts of the life space organization of P₁ even though he is unable to report upon them consciously. As with the rest of the life space, therefore, the data necessary to construct the life space organization may include complicated facts and relations which permit the scientist to infer the existence of unconscious aspects of the organization.

At this time we shall not attempt any comprehensive description of the various parts and relations included in the life space organization. It will vary tremendously from one individual to another depending upon his personality and his position of observation. While these may serve as biasing factors, it will also, of course, reflect the structure and characteristics of the objective organization.
We will probably make a good deal of use of the concept of the perceived organization (LPO) since it will be easy to measure. In principle there is no difficulty in getting all the data necessary to describe the perceived organization of \( P_1 \) by interviewing \( P_1 \). In mentally healthy persons we expect that this perceived organization will closely mirror the properties of the objective organization. We will be mainly interested in any discrepancy between the two since this will be taken as a measure of an important mental health variable, namely, the degree of an individual's contact with reality.

Let us use the concept perceived organization (LPO) to indicate how we intend to relate our psychological and social level concepts of the organization. We have already indicated that there are as many LO's as there are persons, and that the HO (at one level of existence at least) can be thought of as common or shared cognitive structures among a number of persons. We will use \textit{common} in referring to two or more life spaces as meaning "the same as," nearly identical, or having a high degree of similarity. Thus if the architectural features \( X \) and \( Y \) of a physical plant \( N \) of a company are common to both \( P_1 \) and \( P_2 \), then both of them have in their cognitive structures the features \( X \) and \( Y \) grouped together as a part of the plant \( N \). This agreement within this defined two person group can be specified by percentage -- in this case, "100% common agreement in these two life space organizations about features \( X \) and \( Y \) in plant \( N \) at specified time (\( T_1 \)).

We shall use \textit{shared} to refer to "common" plus each person understands the referent to exist in the cognitive structure of the other. We can thus speak of the extent to which features \( X \) and \( Y \) of plant \( N \) are not only common to the LPO's of \( P_1 \) and \( P_2 \), but are known to by \( P_1 \) to exist
in the LOP of $P_2$ and by $P_2$ to exist in the LOP of $P_1$. We can speak of a "per cent-shared" as we have of "per cent-common" for a given group of sharers at a given time.2

This brief description of the ideal, objective, and life space organizations gives an overview of our aspirations with regard to developing concepts at several different levels and interrelating them. In the next section we will use the objective organization to define our primitive concepts regarding the organizational environment.

The Objective Organization

Goals and Objectives. We start the development of our organizational concepts with a consideration of goals and objectives. It is clear that at the beginning someone who has an objective of making some product begins to plan an organization to accomplish that objective. For example, to accomplish the objective of making automobiles someone early begins to plan an ideal automobile factory. Given this objective, it is then possible to plan the division of labor, the authority structure, the responsibility structure, and so forth. Once the objective organization has been set up, it too has the organizational objective of manufacturing automobiles; but the exact nature of this objective, though intuitively clear, is exceedingly difficult to define precisely. Cartwright and Zander (1953) have discussed four different conceptions of a group goal and how it is related to the goals of individual members. Before discussing these problems, it is necessary for us to state briefly our basic theory of individual motivation.

2 These last two paragraphs indicate the approach we are thinking of using to handle these conceptual problems. A great deal of work remains to be done on these problems. Explorations in Role Analysis by Gross, Mason, and McEachron (1958) contains a number of suggestions for us to consider more fully.
Ours is a field theory of motivation in the sense that the locomotion of a person in his psychological environment, and of an organism in the objective physical and social environment, is derived from three elements: a need (n) or value (v) within the person, a goal (g) in the environment, and the psychological force on the person to locomote toward the goal. These internal needs and values will not be further discussed here, for they are treated in detail in the next chapter. Instead we shall summarize the concepts of goal and force used by Cartwright (1959) in his *Formal Basis of Group Dynamics*.

A psychological force exists in the psychological environment as a tendency towards locomotion or restructuring. It has the properties of direction, which accounts for the directedness of behavior towards its goal, and which can be defined only in terms of some geometry of the life space. We shall utilize the theory of directed graphs to conceptualize the structure of the person's activity space and the directions within it. Thus, *direction* is defined in terms of a pair of directly joining points coordinated to a pair of activities which are adjacent in the sense that it is possible to locomote directly from one to the other without engaging in any intermediate activity. The *magnitude* of the force specifies the strength of the behavior tendency, and the *time* denotes the moment at which it is operating. The *motive base* (mb) of the force refers to the need or a value within the person (P) which is the energy source of the force. Finally, the *act of the agent* refers to the act which activates the force. Such an act may be performed by an external agent, for example, another person tells P to do something, or it may be performed by an internal agent, for example, after sufficient
hours of deprivation his hunger needs may act to set up a force on the person to locomote toward food. When the act of an external agent sets up a force on P, we shall also call this, following Lewin's usage, an *induced force* (if), whereas a force whose motive base acts to set up the force will sometimes be referred to as an "own" force (of). 3

A *goal* (g) for P is a region of positive or negative valence, i.e., a positive central force field. Thus the concept of goal is defined in terms of forces all directed toward or away from the goal region. For all such goals the motivational forces are applied to the person; they represent tendencies for him to locomote.

The person P can also perceive the goal of G -- another person, a group, or an organization. Such goals exist for P in his life space (E) but they are not force fields influencing his own behavior, at least not directly. Not only may P perceive that an organization has a goal (G), but P may also have a *goal for the organization* (go). This means that, as a member, P wants the organization to have a given objective and to move toward that objective. Such a goal for the organization can become motivating for P if he is able to translate the direction of the organizational goal into some direction of behavior for himself. This will occur if P perceived that others in the organization are working toward the same goal and if he can perceive a role for himself which helps the organization to move toward its objective.

3 A fuller statement of the symbolism we may want to use here is illustrated by $i_A f_{B,X}$: A induces a force on B toward activity X.
So far all of the goals we have discussed have existed only in the life space of P -- either as force fields effecting P's own locomotion or as perceptual properties of other individuals or groups. Now we shall consider some extra-individual motivational concepts. A shared member objective for an organization is defined as a situation in which two or more members of an organization have the same goal for the organization and are additionally mutually aware that the other has the same objective for the organization. By the degree of sharedness we will mean the percentage of members in the organization who share the same objectives for the organization. Of course, such shared objectives are only possible to the extent that the members have similar cognitive structures -- they must perceive the same organization, they must perceive at least some of the same possibilities for its progress toward objectives, and, for such shared objectives to be motivating, they must probably perceive similar patterns of division of labor among individuals as part of the process of group locomotion. Under these circumstances, such shared individual objectives operate as inducing agents which can steer group members to certain activities rather than others. It is an interesting question whether such forces induced upon members by a shared individual objective for the organization should be considered as induced forces or own forces. At least to the extent that the objective represents the person's own objective for the organization, we believe that the forces are own forces. However, if another member perceives this as the organizational objective but does not accept it as an objective which he wants the group to attain, then it is less certain whether the motivational forces which it sets up upon him will be own forces or induced
forces. It seems likely that it will depend upon his relationship to the group; if he is a strong group member who is both accepted by the group and strongly attracted to it, then he will probably accept the organizational goal and the force will be an own force. On the other hand, if he is not attracted to the group or if he thinks the group should be striving for other objectives, then he may behave in the direction of the organizational objective because of induced forces.

How is such a shared individual objective for the organization related to what Cartwright and Zander call "a particular interrelation among motivational systems of several individuals"? They give an example of three boys who embark upon a single enterprise of constructing a lemonade stand -- one in order to make enough money to buy a baseball glove, the second, solely to use his new carpentry tools, and the third, just to play with the first two. Each of the three had different needs but the activity of any one in the direction of satisfying his needs was also in the direction of constructing the lemonade stand. So it is quite clear that the three had different needs, but it is not at all clear whether or not they had the shared individual objective of building a lemonade stand. It is possible that, for each boy, this was merely a means to some other goal; however, it seems more likely that completing the lemonade stand was at least a subgoal for each. If so, it would not be unreasonable to suppose that there existed in each boy a quasi-need to complete the lemonade stand. As in the case of Deutsch's promotive interdependence of goals, it seems that here too there is an interdependence of goals and of locomotion as well as of needs. If this be true, then our definition of shared individual objectives for the
organization seems to be equivalent to this conception of a group goal as dependent upon a particular interrelation among motivational systems of the members.

**Division of Labor.** Once the organizational objectives have been specified -- to continue our example: to make automobiles -- it is possible to begin to think in terms of what activities must be performed to accomplish the objective. Our most basic concept then is activities. These are defined as molar human behaviors which may also involve tools and other physical objects which typically occur in different behavior settings.

There are a number of different sized units which may be chosen for describing such behavior. It is a matter of convenience which size we choose. For some purposes we need large functional units like "directing an organization," "producing motors," "assembling cars," etc., and for other purposes we need smaller units like "spraying bodies," "billing customers," "answering a telephone inquiry."

Even within an embryonic organization -- before there is any assignment of specific groupings of activities to a single office -- there is some elementary division of work. The man responsible for the "one-man organization" finds his energies being devoted to a different set of activities in different settings during a period of time. Typically these would involve producing, selling, and financing. As more and more attention has to be given over to one or the other of these activities, as an activity must be more continuously performed, one of the activities or a combination may be assigned to an individual occupying a second office. In its simplest form it is the extension and elaboration of this
process that gives rise to the complex division of labor which underpins the structure of organizations and our industrial society itself. There is, of course, no theoretical limit to the extent to which activities can be specialized. One of the principal characteristics of large scale organizations is their growth through the continual specialization of activities.

The grouping together of a set of actual or potential activities to be performed by a single person provides the basis for the smallest unit of an organization -- the office. The office is the "building block" of the organization in that offices may in turn be grouped together to designate first work groups, departments, and then divisions as the units within succeedingly larger, functional activity areas. Chart III:1 presents a schematic diagram of the way in which we are using these concepts. The division of labor within a particular organization exists as a common cognitive structure within the life spaces of four members $P_1$, $P_2$, $P_3$ and $P_4$. The office is a part of the department, which is a part of the division, which is a part of the production function.

As activities are divided and sub-divided again, both a horizontal and vertical dimension in the division of labor comes into existence. With increasing specialization it becomes necessary to be sure that the activities in separate offices are interrelated. The greater the specialization, the greater the need for coordination among organizational sub-units. This brings into existence new activities of directing, controlling, coordinating, and commanding in the organization. These activities are assigned to a vertical array of offices and produce the hierarchical character of the organization. The activities within a small group of
Chart III:1

The Division of Labor of a Four Person Organization
(Common to the life spaces of $P_1$, $P_2$, $P_3$ and $P_4$)
offices are interrelated and directed by the occupant of a superordinate office (the first-line foreman or supervisor whose primary job is to direct the activities of occupants in the offices under him (subordinates)). The directing activities of a group of foremen or supervisors are controlled by the occupant of the next higher superordinate office (the department head) who has this as one of his primary activities. The controlling activities of a group of department heads are in turn coordinated by occupants of the next higher echelon in the organization. All of the activities and offices along the horizontal division of labor within the organization are interrelated through this array of coordinating activities along the vertical division of labor.

The units of office, department, division, etc., then are interlocked through the activities of the generic office of supervisor. The proportion of time a supervisor must give to directing, controlling, coordinating, etc., will vary depending upon the type of organizational family for which he is responsible. The concept organizational family, like supervisor, is a generic term in our conceptual scheme. We may at times however wish to distinguish among organizational families at different levels. The office of first-line supervisor and the offices of his subordinates will be defined as the operational organizational family. The offices of a group of first-line supervisors and their immediate superior will be defined as the directive organizational family. The general foremen and their department head as the control organizational family.

The offices of the board of trustees, the president and the corporate officers will be designated as the corporate organizational family. The offices of the president and his principal executives (corporate officers and managers) as the command organizational family. The offices of the principal executives and their managers may be designated as the coordinating organizational family.

The number of levels of organizational families which it will be useful to identify will vary with organizational complexity. The principal activities performed by the occupants of the subordinate offices in these units will be used to designate the level of the family as has been done here -- operations, directive, control, review and direction-setting, command, coordinating, respectively.

4 The concept organizational family, like supervisor, is a generic term in our conceptual scheme. We may at times however wish to distinguish among organizational families at different levels. The office of first-line supervisor and the offices of his subordinates will be defined as the operational organizational family. The offices of a group of first-line supervisors and their immediate superior will be defined as the directive organizational family. The general foremen and their department head as the control organizational family.
of offices occupied by a supervisor and his immediate subordinates in which is lodged the responsibility for meeting a particular sub-objective of the organizations by accomplishing a particular sub-group of activities within the total division of labor.

It should be noted that while there is generally a great deal of stability in composition of activities which are associated with a particular office, this composition does vary markedly from time to time (Mann & Williams, 1958). We shall recognize this in our conceptual scheme by being careful to specify the period of time involved, i.e., the mix of activities involved in a first-line supervisor's job during the first three months after the announcement of a change-over to electronic equipment.

The division of labor provides the basis for understanding a number of the organizational structures in which we will be interested -- responsibility, communication, locomotion, etc. It is most directly related however to the workflow structure (Richardson & Walker, 1948). The objective workflow structure of an organization for a given period of time is the actual sequence of steps through which work passes from one office to another. It would specify all of the activities performed in each office and the full sequence of links in a particular process of accomplishing an organizational objective. An excellent example would be the plant layout and material handling charts employed by industrial engineering offices.

The ideal workflow structure will be identical with the objective workflow structure in highly mechanized or automated processes. In office and in administrative work, however, there may be sequences in the performance of tasks which are seen as more appropriate than others.
This would be particularly true in new rapidly changing situations where a decentralization of functions has just occurred and new line and staff relations are being worked out, or electronic data processing equipment is being installed and new departmental functions and alignments are being established.

Activities and Behavior Settings. Barker and Wright (1954) have performed an important service, especially for a program of research such as ours, in emphasizing the importance of developing a "psychological ecology," -- that is, a psychological description of the habitat of employees in industry. They point out:

Even clinical and industrial psychologists have usually worked as experimenters by arranging and varying conditions in order to test hypotheses and hunches. The descriptive, natural history, ecological phase of science which is so strongly represented in the biological sciences, sociology, anthropology, earth science, and astronomy has had virtually no counterpart in psychology. This has left a serious gap in psychological knowledge, for in leaving out ecological methods psychology has almost completely omitted a basic scientific procedure that is essential if some fundamental problems of human behavior are to be solved (p.1).

We need to know the correctness of our hypotheses about how different aspects of the environment affect mental health. We also need to find out how these aspects are distributed for different people in different occupations and different jobs.

We have already noted that a given person in our industrial society does not have a single uniform environment. He has a work environment, a home environment, and perhaps several recreational and community environments. Similarly, within the work environment, we have noted that the environment for the occupant of one office may be markedly different for the occupant of another office. Now we need a still smaller unit for
describing differences within the environment of a single office holder.

Fortunately such a unit is provided in the concept of behavior setting as defined by Barker and Wright. They note that certain parts of the non-psychological milieu of the community (what we would call the foreign hull, H), such as the Presbyterian Church, are regularly associated with certain standing behavior patterns, i.e., unique configurations of extra-individual behavior, e.g., the Presbyterian worship service. Furthermore there is a perceived fittingness or synomorphism between the standing behavior pattern and the attributes of the non-psychological milieu to which they are anchored. It is appropriate that the service should occur in a church just as it is fitting that writing should occur in connection with a pencil rather than with a shovel.

"A behavior setting is a standing behavior pattern together with the context of this behavior, including the part of the milieu to which the behavior is attached and with which it has a synomorphistic relationship" (p. 9). From the point of view of a given person, a behavior setting is thus a situation which he can enter including the physical setting, the tools, and other behavior objects in the setting and the standing behavior pattern of the other people in that setting. It is a patterned unit of H which is distinguished from the rest of H by its phenomenal unity.

To a supervisor, as well as to a scientific observer, a staff meeting with a department head is very different from a merit rating interview with a subordinate. Each of these two behavior settings has its own physical setting, its own set of other persons, their standing behavior patterns, and its typical behavior objects. Together these environmental
properties form a pattern which coerce the behavior of the supervisor to the extent that we may predict certain aspects of the behavior of every supervisor in a staff meeting. Thus a behavior setting has the properties of "exteriority and constraint."

Barker summarizes eight possible sources of the synomorphy of standing patterns of behavior and the non-psychological milieu as follows. "In conclusion, the evidence available suggests that the sources of behavior-milieu synomorphy of Midwest behavior settings include direct physical and social forces acting on behavior, native and learned ways of perceiving the milieu, selection of persons with appropriate behavior characteristics, and incidental and explicit restructuring of the milieu by the behavior. The reciprocating causal relationship between behavior and milieu is by no means contradictory and, in fact, is an essential feature of all interdependent systems" (p.57).

Our major task of describing behavior settings in terms of their psychological properties is difficult mainly because of the almost limitless possibilities. Furthermore the various psychological properties of a behavior setting will vary tremendously in their relevance for mental health, yet we know very little at the present time concerning the relevance of the different properties. For their purposes, Barker and Wright have used six descriptive categories for describing behavior settings (p.79). Some of these promise to be useful for our purposes. The occupancy time is simply the amount of time spent in a given behavior setting. For our purposes, we should like to know how much time the foreman, for example, spends in each of the major behavior settings of his job. The data here are obviously analogous to the type of time sampling data on activities
which the Ohio State leadership studies have used. They focused, however, on time in an activity rather than time in a behavior setting. Secondly, Barker and Wright describe the penetration of a person in a behavior setting essentially as the degree of involvement in and responsibility in a behavior setting. Thus, a person may vary all the way from a mere onlooker to being the single principal leader in a given behavior setting. The richness of a behavior setting refers to the variety of behavior possibilities within it. Barker and Wright have devised four different richness indexes, one of which is very similar to the type of variables we have discussed in relation to job enlargement (p.79).

We plan to look at organizations in terms of their most important psychological properties for mental health purposes.

It will be one of our purposes to try and make an exhaustive list of the types of psychological properties which the physical and social environment can have. Any human reaction to the environment is a basis for such psychological properties. Thus there are categories such as:

   a. Sensory Properties -- hot, cold, red, big, etc.
   b. Perceptual -- round, impassable, difficult (goal).
   c. Emotional -- threatening, supportive, loving, appreciative.
   d. Motivational -- frustrating, need-satisfying, e.g., food.
   e. Behavior Possibility -- writable (with pencil), jokable (with person), high production (machine).
   f. Behavior Barriers -- foreman-who-won't-teach-me-how
   g. Physiological Effect Properties -- a hernia-producing activity, or a silicosis-producing room.

   5 This list points out a major unfinished theoretical task for the program. A great deal of work will have to be done in this area.
There is a cognitive structure regarding activities within the life space of the individual which corresponds to an objective activity structure. Having activity as both an individual and a group level concept allows us to deal with the degree of fictitiousness (Rommetveit, 1955), and the accuracy of perceiving the pressures received from the social environment.

Office. The preceding paragraphs indicate the way the division of labor is related to the structure and functioning of large scale industrial organizations with multiple units of departments and divisions. We now need to look a little more closely at the concept of office.

Office is defined as a shared set of potential and/or actual activities suitable for performance by one potential or actual office holder. It usually consists of activities which are closely related functionally, small enough for one person to perform, and homogeneous enough to be easily learned. These are the activities which are described in a job description. It is necessary to distinguish between the actual activities of the occupants of the office and the potential activities which exist as conceptions and possibilities. Both actual activities and potential activities are included in the definition of office. Thus an office, so defined, does not cease to exist when the factory shuts down for the night and the activities cease; but it does cease to exist if the company goes out of business and closes the plant permanently. In defining an

6 Both concepts -- actual and potential -- are wanted because we will want to describe the extent to which a person is actually performing in proportion to the potential activities of the office.
office, we must distinguish between role behaviors and personal behaviors (like blowing one's nose); only the former are included in the office. The role behaviors are defined as those functional (and disfunctional) activities which are determined largely by the organization, or more specifically by the role. When we speak of "member behavior," therefore, we refer to such role behaviors or to behavior as a member of the organization, while excluding all purely personal behavior. It should be noted, however, that informal and "non-rational" or "non-functional" activities are often included in an office, e.g., the activities of the sales manager include telling jokes at the beginning of each staff meeting.

The term "shared" in our definition of office indicates that we will be concerned here with the concepts of "common" and "shared" as we were earlier in the section on goals and objectives. We have already defined common as meaning "the same as; or having a degree of similarity." In this instance, for an office to be common to two or more life spaces it would need to have the same number of activities and the importance of these activities would need to be seen as equal. Thus, if Office A in Organization X is common to P₁ and P₂, then both individuals have in their cognitive structures the same set of potential activities grouped together as a part of Organization X. It will be recalled that shared means common cognitive structure and mutual understanding that these common cognitive structures exist in the minds of each individual. These

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7 It appears that we will need to apply these concepts systematically to department, division, organizational family, work flow, and our other organizational concepts. This cannot be completed before this report is drafted. It remains as an unfinished theoretical task for our program.
definitions underscore office as an extra-individual concept which exists in two or more life spaces with these defined cognitive relations. In working with the concept of office we will need to speak about the amount of "commonness" and "sharedness." To be precise, we will have to designate the group from which we are getting information about the activities of the office. While this will complicate our task it will add to the precision of our operations. Such measures will of course allow us to explore problems which have a direct bearing on mental health variables. Hemphill has shown that performance is related to the extent to which different members of a group share an understanding of the offices of each other. The extent to which a member feels that other members of his group understand the duties of his office will probably affect his mental health. Consider for a moment the difference between the office holder who feels everyone understands his job as contrasted to the office-holder who feels no one understands it or that everyone feels it is the opposite from what he has found the required activities of the job to be.

Offices vary a great deal in terms of the mix of activities that the occupant is expected to perform. The assembly worker finds his office embodies very few activities. His work has been so fractionated that he finds himself in a Chaplinesque job swabbing cylinder holes in an engine block as a seemingly endless series of units is brought to him and taken away by a moving convener belt. The physiological and psychological costs of these highly engineered lines is shown in the studies of the Yale Technology Project (Walker & Guest, 1952) and Friedman (Friedman, 1955). The range of activities which are grouped within an office can
also be too large or the activities can be incompatible (Ross, 1956). Workers whose jobs have been highly simplified find their jobs more interesting and satisfying when their jobs are redesigned and the number of activities are increased (job enlargement) and the sequence in which activities are performed is made more flexible (job rotation) (Mann & Hoffman, in preparation; Argyris, 1957).

It should be noted that the more formal the organization is, the more clearly the LO office exists for the individual. Also the larger the organization is the clearer the HO office is.

Chart 2 depicts diagrammatically a four-person club in social space. The office of club president is shown within the club, and the extent to which this office is a shared cognitive structure is indicated. All members and the president perceive the presidential office as involving activities x and y (i.e., 100% agreement on two-thirds of the three activities) but the fourth member disagrees on activity z.

Role. Having just used the concepts of "common" and "shared" with office to indicate again how we intend to employ them to interrelate psychological and organizational level concepts, it is now possible to go to our next step of defining sent and received roles as pressures and forces with respect to these offices and the activities included in them.

Following Rommetveit a sent role is defined as a set of social pressures on the persons occupying an office prescribing that they should engage in the activities of the office, and how they should perform them, and also proscribing engaging in other activities. Some times the pressures of the role will also impinge on attitudes and beliefs as well as on
75% shared office of president = activities x + y + z (P₄ disagrees on z). 
There is 100% agreement on two-thirds of the activities.
activities (Rommetveit, 1955). These pressures are exerted by role
senders including persons, job descriptions, by-laws, etc. The messages
which they send have the form, more or less explicitly, "you ought to
engage in the activities of the office, and positive and negative sanc­
tions may be applied to assure that you do." Thus the activity plus the
associated social pressures may be called a duty. We are using the word
"social pressures" to refer to these objective activities and other
messages from the social environment in order to distinguish them from
the "forces" or "psychological forces" which exist in the life space of
the person. Thus the objective sent role will normally set up in the
life space of P a received role which consist of psychological forces
corresponding, with more or less distortion, to the objective social
pressures. 9

We should note pressures and hence roles have a different type of
"existence" from an office. They include behavior of O's which exists
outside the life space whereas an office can exist as a common cognitive
structure alone (e.g., when the plant is shut down at night).

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8 We should note that it is not possible to deal with the degree
of fictitiousness (Rommetveit) or the accuracy of receiving pressures
without having a cognitive structure regarding activities which corres­
ponds to an objective activity structure within which we can define
direction of pressures.

9 Another program task, comparable to the problem of common and
sharedness, is generalizing "sent" and "received" from roles and norms
to other concepts like communication, power, etc. These two tasks are
comparable in the sense that both deal with relating individual (life
space) level concepts to group and organizational level concepts via
the interactional level of conceptualization. Both jobs will take a
long time because there are so many organizational and group concepts
involved. Our objective in this chapter is to state the problem and
point the direction for further work by using sent and received for two
key concepts -- role and norm.
Since there are usually several role senders for any role, there may be sent role conflict. This is defined as conflicting pressures, e.g., one role sender says you should do X another says you should not do X. The strength of the role is the strength of the resultant pressure; and the more role conflict the weaker the role. Every occupant of the same role is subject to the same pressures (perhaps within certain tolerances), and if two persons with the same title (e.g., two drill-press operators) are subject to substantially different pressures, then they have, by definition, different sent roles. But these equal objective pressures of the same role may set up unequal psychological forces in the life space of two different role occupants, for they may have different sensitivities, motivations, and contacts with this objective reality.

Who are the role senders for a given role? Normally they will include all the occupants of that role and of all the roles which interact with it. They may even include all members of the organization who know about that role. In short, whoever sends role prescriptions is a role sender. We must, of course, distinguish between role prescriptions and other organizational norms or more general social norms and also from personal influence attempts. Thus if all the men think their foremen ought to try to get raises for them, this is not a role prescription unless they think he ought to do it as a foreman rather than as a friend or as a humanitarian. Although a great many people can send role prescriptions, most of them will not have the ability to apply formal sanctions for role deviations. However, since P will feel rewarded by the approval of all those in his reference groups and punished by their
disapproval, all these people can apply informal sanctions in the form of expressions of approval and disapproval. This is the powerful reinforcing effect of legitimate authority of which Simon speaks (Simon, 1957). For example, if the foreman has the generally accepted authority to make work assignments, this means two things: (1) each worker has an internalized value, corresponding to one of his "job duties," prescribing that he ought to accept the work assignment from his foreman; (2) this value will not only cause guilt if he himself fails to perform his duty, but it will also cause him to disapprove of all others who fail to perform their duties. Thus the great strength of the role is probably more determined by this powerful reinforcing effect of the group than it is by the formal sanctions from one superior.

Just as superiors have great power to apply formal sanctions, so also they have great power to define a role in the first place or to change it.

We have already noted that three types of power are involved in a role: legitimate power, reward power, and coercive power. The reinforcing effects of legitimacy involve the use of a fourth type of power -- referent power. Finally, we may note here that role prescriptions may also be sent in a form using expert power. Quite frequently the messages will be somewhat unclear as to the type of power implied, but will merely express "expectations" that P will behave in accordance with the role.

Because of our interest in the degree of contact with reality, we shall be especially interested in two types of "fictitiousness" of the relationship between the sent role and a received role as described by
Rommetveit: (a) there exists a sent role but no received or a partially received role; (b) there exists a received role but no role sending behavior corresponding to it. The latter is analogous to what Harold Kelly called "comparison reference group" rather than "a normative reference group" (Swanson et al., 1952).

In the quantitative treatment of role and role conformity, it will be useful, where possible, to conceptualize the role as a set of force fields acting along a set of uni-dimensional activities. For example, a role may prescribe what kind of pieces a worker must produce and how many pieces is standard for a day's work. We may think of one aspect of the role as consisting of the behavioral dimension of the number of pieces per day as a continuum and as the associated force field operating along this continuum. Then we may describe quantitatively both the magnitude of force at any given point on the continuum and the distribution or the gradient of these forces. In this case we might expect that the further the worker's production is below standard the stronger will be the forces on him in the direction of increasing his production. French and Zajonc have also shown how this quantitative conception of norms or roles may be used for making derivations about role conflict (French & Zajonc, 1957).

10 Note that this conceptualization of role (and norm) has the same conceptual properties as the conceptualization of occupational sub-identity (Chapter IV) and hence permits a commensurate treatment of the two in dealing with problems such as internalization of a role.
Norm. The French and Zajonc concept of norm will suffice for our definition of quantitative norms: "For the present purposes norm is defined as a set of forces exerted by a given group toward conformity along specific behavioral dimensions to a given standard or ideal (i.e., a specific point or range of points on that dimension) for group members who are in situations requiring behavior along that dimension."

Like a role, a received norm is a force field prescribing certain behaviors in certain specified situations. Similarly the sent norms are the social pressures exerted by the various norm senders; and there are as many of these pressures as there are norm senders. It differs mainly from a role in that a norm applies to all members of a given group or organization whereas a role applies to all occupants of a given office. Using this conceptualization, we may distinguish two types of normative conflicts: (1) intraorganizational normative conflicts occur in a given organization when there exist two or more norms prescribing different or contradictory kinds of behavior for a particular situation; (2) interorganizational normative conflict exists when the individual is a member of two or more organizations having different or contradictory norms for the same situation. An example of the latter would be when a worker is a member of a union and of a company, and these two organizations prescribe contradictory behaviors for him in a given situation during a labor-management conflict. It has been assumed that the strength of such interorganizational normative conflict depends on the relative strength of the person's memberships in the two organizations.
Membership. Like the concept of norm, membership may be defined either for the organization as a whole or for any group which is a part of it. Following Jackson (1953), we shall define membership as a variable jointly defined by the two concepts of attraction to the group and acceptance by the group. P's attraction to the group (or organization) is defined as the mean resultant force on him to remain in the group. This resultant force is obtained by combining the forces corresponding to the positive valence of belonging to the group and the negative valence of belonging to the group. Thus, it does not include restraining forces against leaving the group nor negative driving forces pushing one into the group (which correspond to negative valences outside the group, for example, threats of punishment for leaving the group). Acceptance by the group as a member means that the group accepts P as a member to whom it applies all the norms and sanctions of the group. Perhaps this concept might better be called "occupancy of the group," for it is parallel to occupancy of an office or role in the sense that all the forces are applied to an occupant but not to a non-occupant. Now we may define the degree of membership in the group as the degree to which the person is both attracted to the group and accepted by the group as a member. When both these factors are strongly positive, P is a strong member of the group; his behavior will be strongly determined by the group. Conversely, when both factors are weak or negative, he is not a member of the group. Other combinations of these two factors yield concepts like the preference group relationship (P is attracted but not accepted) and the marginal group relationship (P is accepted as a member but he is not attracted to the group).
A worker who is fully accepted by the company as a worker in good standing but who dislikes the company and his job and would like to leave may be considered a marginal member.

We have already noted that an employee may be in conflict because he belongs to both the company and the union, and that the strength of the conflict will depend on the strength of membership. Now we may add that it also depends on the situational potency of membership which is defined as the relevance of a given membership to a specific situation, i.e., the degree to which that membership determines the person's behavior in that situation.

An employee may have membership in a department, a friendship clique, or any other subgroup as well as in the total organization. In any specific situation the situational potency of all these memberships combined will summate to one, i.e., to the total of the social determination (as opposed to the individual determination) of his behavior. This implies that our basic definition of all of these groups, and indeed of the organization itself, is in terms of the interdependence among members, that is, the extent to which they influence each other's behavior.

Conflicting group loyalty occurs to the extent that: (1) the person is a strong member of two or more groups, (2) the situational potency of both groups is high and approximately equal in the given situation, (3) the prescriptions of the two groups for membership behavior are sufficiently broad and general so that nonconformity to each of the given groups will raise serious doubts in the minds of P and of the other members concerning P's loyalty to that group.
Organizational Structure. The term organizational structure is often used loosely and broadly to include several notions which we will attempt to distinguish. First we will distinguish between a structure and an ordering. A structure consists of a set of parts (i.e., of offices, of people, of subgroups, etc.) and a set of diadic relations on these parts. These relations may be uni-directional (e.g., A likes B) or bi-directional (A and B like each other). Digraph theory is a convenient mathematical model for representing some of the structural properties of such structures. An organization may be structured according to a number of different dimensions -- authority and responsibility, power, communication, attraction, respect, etc.

An ordering of an organization refers to a rank ordering of the parts with respect to some single dimension. Such an ordering may sometimes be obtained by abstracting certain parts of the data represented in an organizational structure. For example, the sociometric structure of an organization may be used to obtain a popularity ordering of the persons in the organization by disregarding the specific connection between one person and another and their structural relation and simply adding the number of choices received by each person and then placing the persons in rank order according to their popularity scores. In other cases, such as an ordering of persons according to income, the data do not represent an abstraction from an organizational structure.

Some theorists have distinguished between organizational structure and process; but these distinctions do not correspond to our concept of structure. On-going processes, such as the flow of communication may be described for a given period of time as a static structure where the relationship among parts is taken as the amount of communication.
Authority, responsibility, and accountability structures. It has already been pointed out that authority -- based on legitimate and sanctioning power -- is a part of the superior-subordinate relationship. Responsibility and accountability are another part of that same relationship.

A superior is responsible for the satisfactory performance of his own duties and the duties of all of his subordinates at all levels. Looking at the same relationship from the position of the other role, we say that the subordinate is accountable to his superior for carrying out his responsibilities. Fundamentally, the allocation of responsibility (and the delegation of authority) is a method of assuring that the work of the organization gets done. When the division of labor is made and the various component tasks are assigned to a role as duties, it is assumed that not all incumbents will carry out their tasks satisfactorily without supervision. Some may be incompetent, lazy, or irresponsible (i.e., not inclined to do their duties); so the immediate superior of each incumbent is made responsible for him, and the incumbent is made accountable to his superior for carrying out his duties and any responsibilities he may have. The emphasis is not so much on activities which an incumbent engages in as on the successful accomplishment of some sub-task in the division of labor. Indeed, a person may be given the responsibility for accomplishing some new task where the required activities are not even known.
The structure of responsibility. We may represent each supervisor's area of responsibility as an enclosed area A, B, C . . . M imposed on the role structure (see Chart III:3).

Chart III:3

All of the responsibilities of the three first-line supervisors, A, B, and C, are included in the area of responsibility, J, of their second line supervisor. Similarly, the responsibilities J, K, and L are included in M, the area of responsibility of the third-line supervisor. This particular responsibility structure has been constructed so that
the areas of responsibility generally correspond to the authority structure which is represented by the directed lines. However, this correspondence need not exist; we could have included more cases like H and I where the supervisor responsible for a worker does not have authority over that worker.

The amount of responsibility of any one role is equal to the amount of work in the area of responsibility weighted by the importance of that work. In principle the amount of work could be measured by the amount of time necessary for its completion, somewhat in the manner of time study. The importance of a given unit of work is more difficult to measure, but we may define its importance as the degree to which it accomplishes some specified organizational goal or function (sub-goal). Ideally it would be desirable to define the importance of each sub-task in terms of a single comprehensive goal of the total organization. In practice it may sometimes be easier to define importance in relation to some more limited goal or function.

Power, Influence, and Control. Many important organizational structures describe pattern of power, influence and control. We shall define these terms sufficiently to use them in distinguishing among the different types of structures. We will however leave the full discussion of their formal properties to Cartwright for more comprehensive treatment in his "formal basis of group dynamics." Power, influence, and control are all diadic relations which characterize two parts of an organization such as two persons, two offices, or two sub-groups. Thus, it is meaningless to apply one of these terms to a single part of an organization by asserting that a person has power without stating the recipient over whom he has the power.
A influences B means that A sets up resultant forces greater than zero on B. An influence attempt by A may set up a force to comply, but it may also set up a resisting force in the opposite direction. When the resultant of these two forces is in the direction of compliance, we speak of positive influence. When the resultant is in the direction opposite to compliance, we speak of negative influence. Positive influence of A over B may or may not produce in B the changes desired by A; it will depend on the strength of the other forces which are also operating on B from some other source such as his own needs, restraining forces from his lack of ability, or forces corresponding to the influence of a third person over him. When A exerts strong enough influence to overcome all other forces and hence to get B to do what he wants him to do, we shall say that A controls B's behavior. By these definitions, it is clear that A's influence on B is independent of any third power, C, whereas A's control of B is highly dependent on such a third power. We shall define the power of A over B as the potential ability of A to influence B; but this potentiality may or may not be actualized via an influence attempt on the part of A. Analogously the potential control of A over B is defined as A having sufficient power to control B.

The influence structure of an organization for a given period of time is defined as the set of influences which each part has had on every other during that time. The control structure of an organization is defined as the amount of control that each part has exerted over every other during a given period of time. The power structure of an organization is a set of power relations which each part has over every other at a given moment. The potential control structure of an organization is
defined as the ability of each part to control the behavior of every other at a given moment. In all four of these definitions it is necessary to specify some given change or set of changes in the recipients of the influence, control, or power; for these may vary greatly from one change to another. A may have very strong power over the quality of B's work, only weak power over the quantity of work he does, and no power at all over the color of tie he wears.

Unlike certain other concepts of power and control, there is in these definitions no specification or implication that power, influence, and control are either symmetrical or asymmetrical. It may be the case that A has strong power over B and at the same time B has strong power over A, or this relationship may be asymmetrical. Furthermore, the definitions do not imply a transitivity of the relationship: if A has power over B and if B has power over C, then we can say nothing about whether or not A has power over C directly. The word "hierarchy" does not refer to a clearly defined concept, but it frequently means a power structure which corresponds mathematically to a "rooted tree" in which no subordinate ever has power over his superior and no person has two bosses.

We have defined the concepts of influence, power, and control in terms of the basic concept of psychological force. In addition to the properties of strength and direction, a psychological force is defined in terms of the primitives motive base and the act of an agent. The motive base of a force refers to the motivational system within P which supplies the energy of the force. In our case, we shall be dealing primarily with two such motivational agents: needs and values.
Forces involved in social influence are set up by the act of an agent which is defined as some behavior of another person or other part of an organization. Usually such an act will consist of a direct influence attempt such as giving an order or making a request but sometimes the act consists of the forces sent out by an active policy.

For some purposes it will be useful to distinguish among different types of power, influence, and control in accordance with the different motivational bases which are involved. French and Raven have distinguished five such bases of power which promise to be useful (1959). The expert power of A over B is defined as A's ability to influence B which is based on B's perception that A has greater knowledge and information. The reward power of A over B is based on B's internalized value which dictates that he has an obligation or duty to accept the influence of A. The referent power of A over B is based on B's attraction to and/or identification with B. This latter type of power structure, which is usually considered a part of the informal organization, is closely related to the sociometric structure of persons in the organization. When the agent exerting referent power is the organization or a group, then referent power is based on attraction to or identification with the organization or the group and thus is closely related, by definition, to the concept of membership.

When we refer without further qualification to the authority structure of an organization we will mean the structure of roles (or the structure of persons as role occupants). This structure is related to our earlier definition of role and of duties. The legitimate power of
role A over role B is already specified in the definitions of the rights and duties of the two roles: A has a right to issue orders to B, and B has a duty to obey these orders and both of these are based on the same internalized value about the A-B relationship. It follows that intraorganizational role conflict with respect to those activities of a role which are relational (i.e., imply influences on another role) are also disturbances of the authority structure of the organization. We have already noted that the strength of legitimate power is strongly reinforced by formal and informal sanctions, that is, by reward power, coercive power, and referent power to the extent that the same values are shared or common to the members of the organization. It is important to note here that we are not talking about abstract generalized values concerning right human relationships but rather about very specific and particular values about right role relationships. The degree of agreement on these values will greatly determine both the average strength of the legitimate power relations and the amount of conflict within the legitimate power structure. Such conflict includes both role conflict as defined above and also situations where a person is under the power of two or more other agents who make conflicting influence attempts. Ordinarily the latter type of power conflict will not occur within the authority structure which tends to conform somewhat to an ideal plan of formal authority. Most often it will occur when A has legitimate power over B at the same time that C has referent power or some other type of power over B.
Communication Structure

The ideal-plan communication structure (ICS) is the network of communication links through which orders, information, and all communications necessary to the functioning of the organization are supposed to be transmitted. In large scale industrial and governmental organizations this ideal communications structure for orders (and the transmitting of information down through the organization) is usually identical with the authority structure. Occupants of all positions in the organization are expected to route their communications to persons in other sub-units through the superior they have in common in the accountability structure.

A potential communication structure is a pattern of channels through which communications are expected to flow in a system of relationships. It is a set of social pressures deriving from common and shared prescriptions about the way information ought to move among offices at a particular time. These sent social pressures become effective psychological forces in the receiver. The source of their force in the receiver may be authority, sociometric affiliation, or expertness.

The actual objective communication structure (HCS) is the pattern of communicative behavior which occurred in an organization during a particular period of time. It consists of messages sent by office holders, but it indicates nothing about their receipt. Received actual communication which has produced some change in the recipient has been referred to earlier as the influence structure. Recurrent patterns in the actual flow of information -- regardless of the purpose of the communication -- in the organization (methodologically high frequencies) are indicative of the HCS.
The occupant of any particular office is only partially aware of the ebb and flow of communications around him. As we have indicated previously what is in his life space -- both conscious and unconscious -- concerning the objective structure is defined as life-space communication structure (ECS). On some occasions we will be concerned only with the component of this structure which is conscious to the respondent, this we will call perceived communication structure (epcs).

We will be interested in a wide range of communication content from order giving to gossiping. At times we will want to take careful account of these differences because communication structures may differ depending upon the content of the communication. The communication structure for orders would undoubtedly be quite different from the communication structure for complaints of subordinates.

Sociometric Friendship Structure

Another structural dimension of particular importance in describing the organizational environment of the individual is the friendship or attraction dimension -- the friendship choices linking persons in the organization.

Institutions differ in the extent to which this dimension is seen as relevant. One of the principal characteristics of the large scale work organization is a depersonalized structure of explicitly defined and regulated roles. The business organization is designed to operate with a marked degree of impersonality; detachment rather than emotional acceptance and involvement is stressed. Thus the ideal type attraction structure for the industrial corporation would indicate theoretically at least that there are no personal friendships among the occupants of the system of offices.
There is a moral imperative in the family, on the other hand, as a person-centered rather than a task-centered institution, to be concerned with the emotional and affiliative needs of its members. Therefore ideal-type attraction structure for the family will be particularly important when investigating the interrelationship between the work and family situations and mental health variables.

The objective attraction structure (HAS) of an organization for a given period of time is defined as the forces resulting from the choices made among members for association with one another as persons. In most organizational literature this is referred to as the informal organization. We will use cohesiveness as the resultant of all the forces acting on the members to remain in the group. Thus, cohesiveness is defined as an attribute of the group. It differs from attraction which refers to the forces acting on a single individual (Festinger, 1950).

Research by Seashore (1955), and Van Zelst (1952), and many others indicate that cohesiveness of the industrial primary operational group affects the members' productivity, turnover rates, and similar indices of individual effectiveness and adjustment.

Social Value (Prestige) Structure. Each office in a social organization is surrounded by a set of expectations and demands having their origin with other members. A person who is successful in fulfilling these sent role expectations will be valued by other members (Jackson, 1953). They will see him as making a positive contribution to the objectives of the organization. Jackson points out that it is not necessary to assume perfect consensus among members of an organization with respect to its objectives. A person will be valued or not by others
to the degree that he makes a contribution to the objectives which they accept as the proper objectives of the organization. The objective social value structure (or respect structure) (HSVS) is the evaluations made among members of the extent to which each are making a positive contribution toward the objectives of the organizations.

The life space social value structure will be a particularly valuable concept in our program. Distortions by the individual of the objective social value structure will provide evidence regarding the mental health of the individual, and -- in the case of distortions -- coping mechanisms commonly used by the individual. There is also of course, a great deal of evidence to suggest that a number of dimensions of a person’s mental health will be affected by his perception of whether he is valued or not valued by his associates in work and other behavior settings.

Lo locomotion Structure. The locomotion structure refers to the connections of offices based on the criterion of possibility (or probabilities) of locomotion of persons during their career in an organization. The ideal plan locomotion structure exists in only a few organizations which have developed rotation and promotion sequences to be sure that personnel with certain combinations and balances of skills are developed. Usually these plans exist only in the minds of the principal line and staff executives. When such plans do become a matter of formal record, they are potential locomotion structures.

The objective locomotion structure is defined as the actual sequence of offices through which members of the organization have passed during a particular period in an organization. The valence for locomoting into a particular office will probably be a function of the power and the importance of the office.
The life space locomotion structure is the sequence of offices through which a particular member thinks a person must pass during a career in an organization.

Other Organizational Structures

There are undoubtedly many other dimensions of organizations which could be designed. One of the major early tasks of this program will be to identify those, in addition to the ones cursorily presented here, which have particular relevance to mental health research. Work could profitably be done on the following structures: loyalty, identification, sub-group, reward, etc.

Mathematical work is being done presently in the Research Center for Group Dynamics of the Institute for Social Research to include, not only all or none links, but also probabilities.
Chapter IV
A CONCEPTUAL APPROACH TO PERSONALITY

In Chapter I, a diagram was presented (Figure I:2) to indicate relations among the several classes of variables which need to be considered in any theory of behavior. This was largely an elaboration of the Lewinian formulation that behavior is a function of the person and the environment. Moreover, person and environment are conceived as interacting systems and the environment has both an objective existence independent of the person, \( H-A \) and a psychological existence in the person's life space, \( E \). A more detailed conceptualization of both of these meanings of environment was presented in the last chapter. In the present chapter, there will be an investigation of some of the properties of the person, \( P \), which interact with the other parts of the total person-environment system to determine the person's behavior and psychological states. In addition, the interrelations among these personal properties and between them and other parts of the system will be considered. There will also be a preliminary treatment of some of the basic processes within the personality and between it and the other major systems, mainly \( E \).

The primary task of this chapter, then, is to review briefly some of the concepts and propositions about the person which are likely to be helpful to this research program, to cast them in a general framework, and finally to raise some of the problems in the area of personality with which we will probably have to come to grips. The chapter is divided into three major sections: 1) Preliminary considerations of personality theory; including subsections on (a) the present state of the field and the need for eclecticism,
(b) contemporaneity and the persistence of personality characteristics, and
(c) the role of personality in a psycho-social theory. 2) Abstract classes
of personality constructs, with subsections on (a) cognitive structure
and concept formation, (b) affectivity and emotional responses, (c)
motivation and standards of action, (d) abilities and personal resources,
and (e) coping procedures and defense mechanisms. And 3) an attempted
integration based on a theory of self identity including a discussion of
differentiation, organization and dynamics of the self system and its cog-
nitive, emotional and motivational aspects, and the relations between the
self, and the psychological environment, and the physical and social envi-
ronment.

Preliminary Considerations of Personality Theory

The Present State of Knowledge and the Need for Eclecticism

Despite the brief history of systematic empirical research, and the
only slightly longer history of theoretical thought on factors associated
with mental health, a wide variety of personality characteristics have been
related to positive or negative indicators of mental health. Various kinds
of motivational properties of the person and various perceptual processes
have been related hypothetically to mental or emotional disturbances.
Tendencies and perhaps abilities of the person to cope with different kinds
of personal problems have taken a central position in various attempts to
understand etiological and therapeutic processes connected with emotional
disorders. In most instances, theorists and practitioners have attempted
to explain the person's current mental and emotional status in terms of
his past experiences, often his experiences in the very early years of life.
A scientific understanding of such hypothetical connections among events must be based on systematic theory which has both conceptual clarity and empirical foundation. Eventually such a theory must have terms for characterizing the properties and dynamics of the person as he exists and persists in a social environment.

Empirical researchers in this area have sometimes been quite eclectic in their use of personality concepts, borrowing a variable here and there which seems to be most relevant to the problem at hand. This is not to say that they have had no theoretical reasons for dealing with the particular variables, but only that they did not attempt to place them within a conceptually defined theory. On the other hand, there have been attempts by theorists in psychology and psychiatry to construct general theories of personality which are useful in "explaining" the determinants of emotional disorders; perhaps psychoanalytic theory is the most notable example. In such cases, precision of measurement and conceptual clarity are often sacrificed for generality. The generalizations are often based on clinical observation and intuition rather than systematic and controlled data collection. While this is frequently a very fertile source for hypothesis generation, the hypotheses so set forth are seldom tested in any systematic way. Thus we are left with a few reasonably well conceptualized and substantiated hypotheses which fit together only loosely and a rather large number of vague and poorly tested propositions which are more or less incorporated into one or another general theoretical scheme. If we are to make any use of personality characteristics in attempting to understand mental health (and we can hardly avoid doing this) we would do well to make use of whatever research findings are available, but this, in itself, hardly would be adequate. We
must also make use of the insights and intuitions of those who have been most actively interested in personality and mental health and disorder, in spite of the ambiguities and the substantial lack of confirmation.

In short, although there are a variety of personality theories available in the literature, no one theory is adequate in its coverage of the field, and none of them are adequate with respect to conceptual clarity and empirical foundation. We can do little, at present, about the latter problem. With respect to the former, a certain amount of eclecticism can be helpful. That is, while no single theory gives a very complete coverage, each of them makes some contributions which are for the most part overlooked by others. Those contributions of one theory which look fruitful at the present ought not to be lost just because as yet we are unable to fit them into the framework of another theory.

Psychoanalytic theory and its various derivatives and elaborations perhaps provides the most general approach to personality and that most directly suited to at least some kinds of mental disorders. The Need theories of Murray (1938) and of McClelland and Atkinson (1953) deal somewhat more specifically with certain motivational tendencies of the person and suggest empirical measures which may prove useful. Lewinian Field Theory (Lewin, 1936, 1951; Cartwright, 1959b) provides a general framework for analyzing the determinants of behavior at a given time and, perhaps more importantly, a metatheory or philosophy of theory building which sets forth principles for the development of new concepts and propositions. And finally, the concepts of self and ego-identity, as set forth by Miller (1959), Erikson (1950, 1956), Rogers (1951), and others, should probably find a rather central place in our attempts to characterize the person.
Before looking more directly at personality concepts, it may be helpful to raise some more general questions about what a personality theory is, where it fits into a general theory of behavior, and about its role in this program of research on environmental influences on mental health.

Contemporaneity and the Persistence of Personality Characteristics

One of the central problems which has divided and perplexed personality theorists to a considerable extent is the degree of emphasis to be put upon early experience. One of the major contributions of psychoanalytic theory lies in the specification of various ways in which experiences in early childhood may affect current behavior (i.e., that of the adult). Yet, on metatheoretical grounds, (see Chapter I) behavior at a given time is determined by the total field existing at that time. While these two notions are not inconsistent, if we are to deal with the effects of early experience this must be fitted into a theory of causation which is consistent with the principle of contemporaneity. Moreover, if personality is to have any meaning at all, it must be built on an assumption of relative stability and persistence over time.

It is assumed that if a childhood experience influences some current behavior pattern, it does so by means of some "trace" or "residue" of the experience which has persisted over the interim, i.e., the experience produced a change in a persisting characteristic of the person and this characteristic, so changed, has some effects on behavior at the present. One of the implications of this formulation is that in principle the "trace" itself, the lasting characteristic, should be subject to measurement. Unfortunately we are not always clever enough to be able to do so. In fact our only method of measurement at present is to infer its presence from some observed
behavior, behavior which takes place at a given time and which is determined by the total field operating on the person at that time. Our confidence in our inference is enhanced if similar behaviors are elicited in a variety of situations, or if situational factors are held constant and given minimal opportunities for producing differential effects across persons indicating that the behaviors are more a function of the person than the situation.

However, we must be clear that whatever characteristics we attribute to personality, they are hypothetical abstractions based on observations in concrete situations. This is as true of the psychoanalysts' inferences from his "data collection" over a two year analysis as it is of the need theorists' relatively objective questionnaire or projective measure.

While it is quite possible that nearly every experience of the person produced some change in one or more of his lasting characteristics, we are usually interested in those which will produce, in turn, the most marked effects on subsequent behavior. For most of these it will be unnecessary to refer back (even if possible) to the events which originally induced the change. Our interest in personality traits lies primarily in their effects, not in their causes. That is, we are interested in personality as a contemporary factor in the total field at a given time, a factor which, along with environmental factors, determines the person's behavior at that time.

There are, however, two reasons for a program such as ours to consider the origins of personality characteristics. First, there are times when traces of an earlier event are assumed or hypothesized but, either due to complexity or ambiguity, we are unable to measure the traces directly. In this case it may be useful to know whether or not the person has experienced the event. Given a rather extended inference, knowledge of the occurrence of the prior event might be used as a "measure" of its resulting trace. This
is, I think, the essential meaning of such demographic variables as education, occupation of parents, past military service, and "leisure time activities during the third decade of life." Psychiatric hypotheses about psychic trauma and the effects of various childrearing practices are additional cases in point. One should be clear when reasoning across time in this way that there is some enduring characteristic resulting from the event which, in any general theory, should be established by independent evidence.

A second concern for the origin of personality traits is with the process of formation and change itself. While investigators of industrial mental health may be relatively unconcerned about the person-environment interactions of early childhood, it may be assumed that personality changes resulting from such interactions are similar in process to those occurring in adulthood and that it may be useful to contemplate them in the less complex settings of childhood. To be useful, investigations along this line should lead to abstractions about process which could be examined in the adult situation. For example, we may be interested in the hypothesis that identification with others results in some changes in the self-concept. It may be fruitful to utilize the observations and conceptualizations of childhood identifications in developing a theory of identification at the adult level. This again requires some assumptions which may be quite tenuous and it seems unlikely that this program would want to invest very much in this kind of effort, probably not to the point of empirical research on children. But it may be important to become familiar with the literature on personality formation so as to be able to assess the likelihood of significant processes of personality change in adults.

For the most part, then, we are interested in those properties of the person which are contemporaneous to the behavioral situation and which may
contribute to our understanding of the determinants of that behavior.

The Role of Personality in a Psycho-social Theory

The personal properties that the individual brings to a given situation are seen as a major, but not the only, part of the system by which one can understand his behavior. Various situational factors which limit, guide, and support his behavior also must be considered, and indeed, these are central factors in this program. Most attempts at theory building in the area of personality in the past have in fact gone beyond the limits of internal characteristics and have included environmental concepts. Thus, in a limited sense, nearly every theory of personality of any generality is a psycho-social theory, but in most cases not as fully so as much of the current thinking.

Too much of the emphasis in the past has been on the internal determinants of behavior, with insufficient stress laid on how these internal factors interact with social factors. Moreover, where situational factors have been introduced in theories of personality, not enough attention has been paid to the conceptual fit between them and the basic concepts of the internal factors. In terms of the Cartwright diagram (Figure I:2) the properties of P must be linked conceptually to the properties of E and of H. If there is an intricate interaction among personality and environmental factors, our understanding of it will be enhanced to the degree that the theoretical constructs dealing with both fit into a common system.

If personality theorists have too often ignored important factors in the environment, then sociologists and social psychologists have equally often overlooked the importance of the internal properties and processes of the person. Even where lip service is paid to the importance of both classes of variables, serious attempts to formulate commensurate theoretical systems
bridging across the two classes are rare, and in the present stage of knowledge such systems are virtually out of reach. It may be possible, however, to suggest directions for further developments along these lines.

The conclusions to be drawn from this are, first that the material presented in this chapter does not represent a complete theory of behavior, even in outline form. Personality characteristics constitute only part of the total theory and must be viewed in the larger context. Second, wherever possible, the constructs dealing with properties of the person must fit the concepts in the rest of the system in such a way that relations across major parts of the system are logically implied. At the present, however, this is not always possible, and rather than exclude important factors which at present do not fit very well, we must use this principle to guide further development. None the less, we should pay particular attention to ways in which personal factors correspond to such things as regions, valences and force fields, barriers, time perspective, and levels of reality and of awareness in the psychological environment, and to such things as offices, norms, roles, pressures, acts of others and events in the objective social and physical environment.

Abstract Classes of Personality Constructs

Before attempting to present an integrated view of personality, it will be useful, perhaps, to review briefly some of the concepts which have been used in the past and which, in altered form, may be useful as building blocks in further theoretical developments. This may serve to specify some of the factors which must eventually be taken into account and to point out some of the contexts within which the theory emerges. This review
certainly will not be complete or exhaustive nor is it to be seen as systematic. Rather, it will be suggestive and will provide a number of concepts which may serve as quasi-concepts during the early stages of theoretical development.

The division of personality and of various personal properties into cognitive, affective (cathectic), and conative aspects has a long history in psychology. It must be recognized that these are abstractions from reality, that there are no cognitive elements which are free of affective or emotional loadings, and there are no motives which can be understood other than in a given cognitive and emotional setting. Nevertheless, it is sometimes helpful to separate these three elemental properties for purposes of analysis. The organization of this section of the chapter, then, is somewhat artificial, but, it is hoped, not misleadingly so. To these three aspects we have added discussions on two additional aspects of personality; abilities or capabilities and personal resources, and problem solving strategies and defense preferences. We shall attempt to suggest only briefly some of the dynamic and developmental aspects of each of these topics.

Cognitive Structure and Concept Formation

The person organizes his experience and his actions around the special personal meanings he attributes to various entities and events. Past happenings and future potentialities exist for him by virtue of his symbolic representations of them. He remembers past situations and experiences, perceives and interprets current situations and activities, anticipates and plans toward eventualities in the future, thinks about relationships among various things, and communicates with others all by means of manipulating cognitive symbols.
In a very real sense, the person reacts in a given situation, not as it really exists, but as it exists for him, i.e., in terms of its special idiosyncratic meaning for him. The psychological environment is all he knows of the environment, and that is both more and less than is objectively present in that situation. That is, he perceives and "codes" into his own terms only part of what is there to be seen, and yet he brings to his perceptions and interpretations many elaborations from past experiences in similar situations creating a personal representation of the situation which could never be predicted from an investigation of the external situation, no matter how intense.

Differentiation and organization of the cognitive structure. We have indicated that the psychological environment as Lewin treated it is itself a cognitive structure, an organization of cognitive representations existing at a given time. But this is conceived here as only a part, albeit a very important part, of the person's total cognitive structure. At any given time much of the total is dormant so to speak. That is, the person has many more concepts and memories, and has some knowledge about many more things, than are present at any one time. One of the important aspects of the theory as it develops will be that dealing with the selectiveness of elements represented in the psychological environment.

The importance of cognitive concepts lies not in their existence alone but in their usefulness for differentiating and discriminating among various aspects of the situation and for representing relationships among them. The early notions of association bonds and connections point to the importance of the latter. Lewin (1951) has provided an initial approach to cognitive structure with his concepts of region, boundary, unity, interdependence,
and differentiation. Zajonc (1954) has extended these notions, has added other structural relations among cognitive elements, and has developed a measurement technique which may prove quite useful in the work of this program. He uses a set theoretic approach to representing the content and organization of the cognitive structure. More recently his interests in cognitive elements has moved toward a concern for the development of dimensions and attributes and toward cognitive processes under perceptual uncertainty. He is also concerned with the process of concept formation and a process which he calls "cognitive tuning." While it would be inappropriate to spell out this approach in detail here, there have been significant inroads on a systematic and quantitative method of investigating cognitive structure.

Levels of consciousness and the problem of awareness. It was suggested above that much of the cognitive structure is inactive at any given notion, and perhaps more needs to be said about this now. Let us dispell any doubts at the outset; while we are interested in perception, interpretation, thinking, planning, and the such, we do not assume that all cognitive activity is conscious and rational. In fact, we will often be interested in just those cases in which rationality and full awareness are notably lacking. Perhaps one of Freud's most outstanding contributions was in drawing attention to the now undisputed fact that much of man's behavior and its determinants lie beyond his conscious awareness. Not only is he often quite unaware of his reasons for doing things, but he often systematically fails to perceive, misperceives, or misinterprets things going on around him. Only some of this can be attributed to situational factors (insufficient or ambiguous stimuli) or to inadequacies in the perceptual apparatus. Moreover, Freud quite appropriately indicated that the distinction between conscious and unconscious must be expanded to include other levels, e.g., the preconscious.
It is probably correct, in fact to conceive of this as a continuum from full conscious awareness to beyond all access to consciousness with many gradations in between.

Unfortunately there are many methodological problems involved in research on unconscious aspects of the cognitive structure, and rather extended inferences must be drawn at times. However, in spite of these limitations, the importance of semi-conscious and unconscious material is too great to have it slighted in our work.

The perception of persons and the self concept. Perhaps the most significant objects of cognition are the self and other persons. The "quest for identity" (Wheelis, 1958) indicates both the importance of the self concept for the person and the difficulties in establishing and maintaining a stable and acceptable one. In a later section of this chapter, and in several sections of Chapter V, the self or self-identity will be treated in more detail. Suffice it to say for the present that the self is perhaps the most important system in the cognitive structure and one around which many other systems and processes take place.

Just as the person needs to know himself, he needs to comprehend the complex characteristics of other persons. Persons differ from other non-human entities as objects of perception and cognition in several important respects. In the first place, they have a tendency to react to the person's actions in complex and at times unpredictable ways. They behave independently of, and at times in conflict with the wishes of the person. They have needs and desires, sensitivities and insecurities, perceptions and interpretations of their own. They mediate many rewards and punishments for the person, and, perhaps most important, they do so as a result of their perceptions and evaluation of the person cognizing them. In short, the properties and
propensities of other persons in a complex social system make up the most significant set of entities and events with which the person must cope, and to do so he must have a sound and meaningful understanding of them.

Repeated perceptions of another person eventually leads to a more or less integrated concept of what that person is like, what his physical properties and attachments are, what he is apt to do in various situations, how he is apt to react to various behaviors of the perceiver, P, what things he is striving for or trying to avoid, etc. This complex concept of the particular other person, O, is further reinforced or modified by symbolic communications about O which others send to P. This concept is, of course, subject to various perceptual distortions and biases and may differ in important respects from some other person's concept of O. However, it represents what O "means" to P, that is, it "identifies" O for P.

In the process of developing concepts of significant others, P tends to develop notions about various ways in which people are similar or different, i.e., various dimensions on which people can be compared. Some of these dimensions are more important than others, in the sense that they sort out people who are "good" (warm, friendly, helpful, need-gratifying) for P from those who are "bad" or are to be avoided. The important point for the present is that the various dimensions and ideas about people get organized, some being more central or important than others, some being closely interdependent, and others less so, etc.

In addition, the development of a self concept takes place in a context of developing concepts of persons in general and of the idiosyncracies of specific other persons. He knows himself by virtue of his relations with and knowledge of other persons, his family, his friends, his workmates, and
his heroes, and by virtue of the cultural images, the stereotypes, the
prejudices, etc., about people which are part of his cultural heritage.
Thus the cognition of persons is important both in its own right and in its
influence on the self concept. More will be said later about the relations
between the concepts of other and self.

In sum, the cognitive structure in all of its many characteristics is
seen as a central and important aspect of personality; and in many aspects
of the psycho-social theory toward which we are aiming, cognitive and per­
ceptual properties and processes will have to be taken into account.

Affectivity, Evaluation, and Emotional Responses

Much of the emphasis in the field of mental health and mental illness
has been on the emotions. Not only does the person remember, think, imagine,
and plan, he also feels; and these fellings are seen as both symptom and
cause of various mental disorders. From the first weeks of life the child
is faced with various emotional experiences which are thought to be fore­
runners of psychological strengths and weaknesses in later life. At first,
perhaps, many of the child's affective states are relatively free of symboli­
ization and cognitive representations, but with further development most of
them become intimately linked to various cognitive experiences and to various
environmental events. This is so much the case that in our common language
and in various "expert" treatments the affective state is often defined in
terms of the cognitive content or by the situational cause, for example, when
anxiety is defined in terms of the coming to awareness of repressed, conflict­
ual material, or when feelings of security are defined in terms of the environ­
mental supplies which make such feelings possible. Perhaps just as often,
cognitive elements are labeled by emotional states which often attend them.
To our knowledge, in spite of the importance of this aspect of the person, there has been no adequate theoretical treatment of the emotions in general. However, a number of important special cases have received considerable attention. Erikson (1950) makes a strong case for a general emotional characteristic of the person which he calls "basic trust," and which he interprets as first developing in early infancy. This is similar or related to Horney's notion of the child feeling alone and helpless in a hostile world (Horney, 1937) which tends to produce life-long feelings of insecurity.

There are also a number of somewhat more temporary emotional states which have played an important role in theories of mental health, e.g., pain, fear, anxiety, guilt, shame, anger and depression on the negative side, and pleasure, happiness, excitement, contentment, pride, and euphoria on the positive side, to mention only a few. Save for three or four of them, they all take their meaning from common usage, and there has been little attempt to formulate clear conceptual definitions for them. However, there has been a great deal of effort placed on finding the social and psychological causes and correlates of them, and no one can doubt their importance in any general theory of mental health.

Recent developments in physiological psychology and psychosomatic medicine have made important inroads into the connections between affective states and various physiological states and events. This has importance both for the theory of psychosomatic disorders and for the measurement of the emotions themselves. The GSR, palmar sweat, heart rate, blood pressure, breathing rate, and the like have all been used as measures of indicators of one or another of the emotional states mentioned above. While there is still much to be learned in this area, it is apparent that this may prove
useful in the research activities of the program. Both the emotional states and the physiological measures are important areas for study, each in its own right.

Further work is clearly needed both on conceptual definitions of the emotions and on linking the emotions to cognitions, to social and physical conditions in the environment, and to motivation. This last will be dealt with more fully in the next section.

**Motivation and Standards of Action**

There are a number of classes of motivational concepts which probably must be included in one sense or another in the eventual theory, and they come primarily from developments in three major theoretical approaches, namely, field theory, the need theories of Murray (1938) and McClelland, et al. (1953), and psychoanalytic theory. In addition to the contributions from these three general approaches, we must, of course, take into account the various physiological drives or tissue needs of the organism; hunger, thirst, sex, elimination, pain-avoidance, need for air, etc.

The dynamic constructs of Lewinian field theory (force, force field, valence, tension) will be vitally useful concepts for representing the person's motivation at a given time. These concepts have been presented elsewhere and need not be treated in detail here. But it must be noted that they are useful primarily because they provide, in principle, a clear connection between the properties of the person and conditions in the environment.

While we have not found it necessary (even if possible) to enumerate a complete list of needs which have been referred to in the literature on motivation, there are a number which do appear to have special significance in this program. A group of needs which center around the self as object
may be subsumed under a general heading as a need for self-esteem, for example, the need for achievement. There is also a set of needs which have social relationships between the self and others as the object, some toward the development and maintenance of the relationship and others toward the avoidance of the relationship. Examples are needs for dependence, for power, for independence or autonomy, for love or affection, for affiliation, and for aggression.

The psychoanalytic approach to motivation is for the most part much less "content-specific" than that of the need theorists. That is, the need theorists tend to identify more or less specific aims and objects toward which the person strives under arousal conditions and more or less specific stimulus factors which tend to bring about the arousal conditions. If this is done for each need, then a complete theory requires an exhaustive (and likely exhausting) list of needs to handle the tremendous range of behaviors in an almost unlimited number of possible situations. No one does in fact try to set forth such a list. Psychoanalytic theorists, on the other hand, are similar to field theorists in their use of a few general and content-free concepts to represent motivational tendencies in the person. The term, id impulse, like the term, force, may refer to a great many tendencies to behave in widely different ways.

The three major parts on the psychoanalytic conception of personality—id, ego, and superego—each have a supply of "psychic energy," and thus motivational properties. The forces of the id cannot be overlooked, but there are some difficulties in knowing whether they represent only elaborations of tissue needs or also more complex learned motives. The energy available to the ego is used for the various ego functions and defense mechanisms.
These are indeed motivational concepts, but because of additional complexities and because of their special functions in determining behavior, they will be discussed in a later section.

The concept of superego, with its moral standards and ego ideals, brings to our attention a class of motives which are relatively overlooked by need theorists, namely internalized cultural values and behavioral standards. Values differ from needs for the person in that they pertain to everyone while needs pertain only to the self. Such moral values as fair play, honesty, consideration for others, etc. are not only prescriptions for own behavior but also criteria of evaluation of the behavior of others. If it is wrong for me to aggress violently against others, it is also wrong for others to do so. On the other hand, if I have a strong need for achievement, there is no reason for me to be interested in having other persons do well, perhaps quite to the contrary. We expect others to abide by our moral standards, but not for them to behave in accordance with our needs. In many respects, ego ideals overlap with many of the needs specified above. Certainly the need for self-esteem sounds very much like a need to have one's ego be similar to the ego ideal. Need for achievement, and many of the social needs may also be closely related to ego ideals. It should be noted that with respect to both moral standards and ego ideals, the perception of self is an important component of the motivation. Therefore, they may be treated, along with some of the needs, as self-oriented motives.

The conceptual approach to motivation in general which seems to be most useful at present is that based on an affect-arousal model. This links the motive states to various affective experiences. In this context, the motivational system of the individual obeys the pleasure principle; it is comprised
essentially of the seeking of pleasurable affective experiences and the
avoidance of unpleasant affective experiences. Guilt, shame, fear, anxiety,
pain, boredom, etc., are affects which the person strives to avoid, while the
person seeks after feelings of pride, virtue, physiological pleasures, etc.
While many of the ramifications of this approach have not been worked out,
it seems possible to develop a consistent conceptual system dealing with
motivation which can incorporate the rigor of the life space constructs,
the facility for handling the individual case under widely varying circum­
stances of the psychoanalytic formulation, and the advances of measurement,
prediction, and attention to individual differences in the work on specific
needs.

Abilities and Personal Resources

Many workers in the field of mental health have paid relatively little
attention to the skills, capabilities and expertness of the person. If the
person can perform his job only poorly because of lack of interest, or interper­
sonal conflict, or depressive or anxiety states, then his performance becomes a
matter of concern. But if he fails to perform well because he lacks skill,
or because he doesn't understand some of the requirements, or because he is
not very bright, there is a tendency to exclude his performance from mental
health considerations. Our theories must include all possible determinants.
Various skills and abilities, and various physical and mental capacities,
certainly must be counted as persisting properties of the person, and impor­
tant properties in as much as they figure prominently in the degree to which
he will be able to satisfy his needs and satisfy the requirements of
various social situations. At present we can say little about how the
concepts of abilities and resources fit into the other major parts of the
personality system, cognitive structure, emotionality, motivation, etc.,
but there will undoubtably be some overlap, and the potential relations need to be mapped out conceptually and verified empirically.

**Coping Procedures and Defense Mechanisms**

The concepts of psychic conflict, anxiety, and defense constitute a highly central part of psychoanalytic theory. The defense mechanisms are perhaps most meaningful in the context of that broader theory, but they have gained wide attention among nonanalytic thinkers. It is beyond the scope of the present treatment to expound in detail on the analytic formulation of conflict and defense. Most of the work to date has centered on the neurotic defenses with their obliterations or reinterpretations of external events, substitute expressions of needs, and distortions in judgment. For our purposes the greatest need is for an expansion of the theory of defense to include normal coping and problem solving. That is, the person learns a wide variety of methods of coping with frustration, conflict, and stress. Some of these are quite rationally directed at solving the problem. Others are geared toward removing the person from the field, toward eliminating or denying the sources of stress, toward altering or repressing the internal motivation, etc. This constitutes a dimension of coping techniques, no part of the range of which should be excluded from the overall theory. Among the more neurotic defense mechanisms we shall want to deal at least with the following: repression, denial, isolation, reaction formation, undoing, projection, introjection, regression, turning against the self, and acting out. Among the somewhat more normal techniques are: sublimation, substitution, rationalization, compromise, and intellectualization; but even these don't carry us into the range of rational problem solving. A complete catalog of coping procedures is probably impossible, but at the outset it would be a mistake to limit the number artificially.
This has been an all too brief review of the major classes of personality variables which the theory must eventually take into account. The eclectic nature of this discussion perhaps indicates the inadequacies of our present stage of knowledge, and this is further exemplified in the fact that much of the discussion was in reference to needed future developments.

An Attempted Integration Based on a Theory of Self-Identity

The self or self-concept has had a long and fruitful history in academic psychology. More recently a number of persons in the mental health professions have turned to this or closely related theoretical constructs to help account for various phenomena which were only poorly handled by the traditional theories of psychiatry. Bingham Dai presents the "organization of selves" as the central construct in his "SocioPsychiatric Approach to Personality Organization" (1955). Erikson has made a strong case for a concept of Ego-identity which he relates to mental health and mental disorders, as well as to the other parts of personality (1950,1956). Rogers (1951) and Anna Freud (1954) have both contributed to our understanding of self and ego. The most recent, and certainly most systematic contribution in this area is D. Miller's "Self Identity as an Integrating Concept" (1959).

It is hardly by accident that these theorists, as well as those who have used similar concepts in the past (cf. Cooley (1902), Mead (1934), James (1890) were also strongly interested in the interaction between the person and his social environment. Each of them points out that to a very large degree, a person's conception of himself is determined by his relations to and interaction with other person. And in like manner, the person's self-concept guides and controls his behavior toward others. Closely associated with the
The notion of social effects on self is the notion of flexibility in the self-concept. In a sense, the self is going through a constant process of development and change. Some theorists direct their attention to early stages in the process—the first differentiation of self from nonself—to the virtual exclusion of later developments. However, others deal specifically with the formulation of further elaborations in the self in the social experiences of the adult.

We find Miller's formulation (Miller, 1959) so comprehensive, and so promising, that it serves well as a working paper for future program developments in the area of personality. Miller makes no pretense that this is a complete theory of personality, but the potential for incorporating other properties of the person, such as those outlined above, into his general framework is evident. Furthermore, directions are suggested for linking the personality constructs to both the psychological environment and the physical and social environment. There will be no attempt to review Miller's total theory here, but there are a number of considerations which are not fully treated by him which should be brought up at this time. These are primarily concerned with ways in which the self identity is related to the social environment, to the person's motivational system and his tendencies toward emotional response, and to the theory of conflict and defense. In Chapter V, the section on role conflict and ambiguity, there is a further discussion of the theory of self identity as it pertains to a particular research problem area.

The Development and Elaboration of a Self-Identity

Two different processes for the attainment of a concept of another person, O, were noted in an earlier section: (a) P's direct perceptions of
Q and his behavior (including P's emotional reactions to them) and (b) communications from others to P about what Q is like. Both of these should be expected to be effective with respect to P's development of a concept of himself. That is, P perceives himself, his physical characteristics, his possessions, his behaviors (and thus his abilities and inabilities) and his desires and fears. Each of these percepts contribute to his concept of self. Other people also communicate to P about what he, himself, is like. He may be praised, for example, for his skillful or courageous acts or derided for being dirty and disheveled. Since P has various notions (developed from his perceptions of others) about what properties of persons and dimensions of comparison are important, he is apt to be particularly concerned about where he, himself, stands in these areas, he tends to be more attentive of his self-perceptions in these than in other respects, and he may even seek information from others about how they think he stands on the more central dimensions.

There are two additional processes whereby the content of P's self-concept may become elaborated. First, Cooley's notion of "looking-glass self" suggests a process which is not directly contained in either of the above. P is aware of his reactions to the perception of properties and behaviors of various others. When he finds others reaction to him in similar ways, he is likely to assume that they perceive the same properties in him. This may in turn lead P to think of himself as he perceives others to be thinking of him. If, for example, Q treats P "as if" he were especially intelligent or stubborn, P may begin to conceive of himself as intelligent or stubborn whether or not his own evaluations of his behavior would lead to this conclusion. Also, if others indicate that they expect P to behave in
certain ways, and he complies with these expectations, he may start to think of himself as the kind of person who does these things.

The second additional process which is pertinent to the formation of a self-concept is identification and introjection. While these terms have been used in various and vague ways in the clinical literature, it is possible to formulate them in cognitive terms and subject them to experimental investigation (e.g., Stotland, et al., 1959). The extent to which identification is operative in industrial settings is an important question for our research.

In three out of the four processes of self-development, the importance of the social environment is directly evident—the source of information about the self consists almost entirely of other people. But even in the case of direct self-perception the social context is often important. Much of a person's behavior takes place in social settings; many of his actions are directed toward other persons or toward subjects which others deem important. For these reasons P may pay greater attention to those behaviors which are significant to others than to those which have no social ramifications. Each of these processes does operate, and leads to changes in the self-concept, virtually throughout the person's life.

**Multiplicity of Selves and Social Contexts**

Both Miller and Dai expressly state that not one but many self-concepts are developed for each person. Miller terms them subidentities, each associated with and formulated within a somewhat different social setting. Dai points out that the primary self develops in the person's early experiences in the family; various secondary selves are developed later through experiences with other significant groups. The formulations of these two theorists are quite compatible; they are both interested in significant and gross
Differentiations in the way the person sees himself, but both indicate considerable interdependence among the parts so distinguished.

If our assumptions about the processes of self-formation are correct, we should expect that P is continually receiving new information about himself in a wide variety of social situations. Some of this information will be quite consistent with his present self-concept and will be readily assimilated. Some will be inconsistent and perhaps detrimental and will be rejected or denied if possible. But some will be neither congruent with nor contradictory to present knowledge of self and will be added onto the self-concept with more or less successful integration.

Delineations and differentiations about various aspects of the self should be reinforced and become stronger concepts through repetitions of the experiences which pointed them out in the first place. Since most peoples' lives are well regulated by recurrent situations requiring essentially the same behaviors and interactions with the same others, there are many opportunities to reinforce some particular elements in a person's self-concept. A given person may have several social roles each of which places him in contact with specific others and which calls for certain behaviors which would be out of place in other roles. It is likely, therefore, that the way a person perceives himself when he is in one role may differ in important respects from his self-perceptions when in others. Thus, P may have a variety of self-concepts, each of which is well formulated and yet somewhat different than the others. Since an occupational role is one of the most important and time consuming of any that most people fill, an occupational "self" or sub-identity is apt to develop which has some
special characteristics. And since in urban America a person's occupational life is often sharply separated from his home life, his occupational sub-identity is likely to differ from sub-identities developed in other contexts.

The notion of a variety of sub-identities raises questions about interrelations among them. How do the various sub-identities get organized into a total self-identity? To what extent do the same elements and dimensions get represented in two or more sub-identities? If a given dimension is pertinent to two sub-identities, is it possible for P to place himself at one point for one sub-identity and at another point in the other? Can a dimension or attribute be central in one sub-identity and peripheral in others? What are the conditions which tend to make one sub-identity more important than others? Answers to these questions clearly depend, in part, in how we define such terms as "dimension," and "point," "central," and "peripheral," and "important." But these are certainly not questions that can be answered by definitions alone. They are empirical questions for which the answers should vary from person to person and situation to situation. While Miller provides us with a number of important constructs, there are still many problems to be faced both on a conceptual and empirical level.

Relations of Self-Identity to Motives, Emotions, and Defense

We have tended to approach self-identity from a strictly cognitive point of view so far. Yet if it is to be useful in the area of mental health it must be related to other parts of the personality. Miller has suggested some connections which are quite important. He notes that on certain (or perhaps all) dimensions some segments have particular significance. His notion of positive and negative poles points this out. There
is a range at the positive end which is "ideal"; it is very desirable to be located at (or have an attribute from) that range, but in most cases it can never quite be attained. There may also be a range at the negative end which is undesirable and to be avoided at all cost. Presumably, P's evaluations of these ranges grows out of experiences or perceptions of rewards for being at the positive end and punishments for being in the negative range. Miller suggests that ego-ideal and superego can be defined in terms of these ranges respectively. Thus, personal values are associated directly with certain attributes (or potential attributes) of the self-identity.

With respect to emotions, one may expect that as the person approaches the ideal range on some dimensions he experiences a feeling of elation or self-satisfaction, whereas, if he finds himself in the negative range, he may feel shame or guilt. Little else is said about what affective states might be associated with various properties of the self-identity. At the moment, it seems useful to postulate a continuum of self-esteem from very positive to very negative which bears a monotonic relation to at least some of Miller's dimensions; changes in a person's position on a certain dimension are associated with either increase or decrease in self-esteem.

But what of the relationship between P's needs and his self-identity? Clearly the past thinking and research on various individual needs is too important to be omitted from our theory. But at present, identity theory, as set forth by Miller, does not adequately provide for them. It is quite possible that the evaluative and motivational aspects of dimensions can be linked to need states of the individual. But what is
required for fruitful development is not just a general translation of need (in the abstract) to dimension (in the abstract). Rather, each of the specific needs which has been investigated in detail must be conceptualized in terms of an organized set of dimensions in the self identity, and this in turn must be conceptually related to environmental demands and supplies on the one hand and to forces in the psychological environment on the other. The concepts of centrality, importance, and interdependence of dimensions also will likely be pertinent to this formulation. An additional question that needs to be faced is, although changes in the self-concept can lead to arousal or gratification of various needs, should such changes be expected to lead to changes in the need structure itself? These and many other problems need much more thought before we can develop meaningful research in this particular area.

There is one more notion in the area of motivation which should be considered. Several theorists have pointed to the existence of a need for identity. For some this means a need on the part of the person to know who or what he is, to know what he exists for or where he fits into a larger social or historical picture. For others it is a need for integration, for organizing the various elements of his personality around some meaningful whole, for a consistent and constructive philosophy of life. Presumably, in either case, this need varies from person to person and goes through various stages of arousal and satisfaction or frustration. Systematic evidence for the existence of such a need is sorely lacking, but various clinical and intuitive impressions suggest that this may be an area worthy of some exploration.
Psychological Conflict, Self Identity, and Defense

Miller has well pointed out the importance of defense mechanisms and coping behaviors for the maintenance of a stable and acceptable self identity. He includes an extended discussion of conflict and attempts to formulate it in identity terms. The importance of this both to the theory of personality dynamics and to mental health is obvious. However, the conceptual problems are by no means simple. For the most part, Miller's discussion of the defense mechanisms differs in hardly any major respects from the psychoanalytic formulation. The conceptual translation into the other basic terms of his theory has not been made. In principle, there is no inconsistency between the analytic theories and either field theory or Miller's theory of self identity. However, each of them tends to stress somewhat different aspects of the total picture. Thus, we feel it is necessary to take advantage of the concepts and findings of each approach. This can be done only to the extent that the considerable gaps between them can be bridged and to the extent that a common conceptual frame can be developed within which they may be incorporated. In spite of recent advances, this framework is not yet available.

A theory of conflict must be broad enough to cover not only internal conflicts, e.g., among needs and values, but also conflicts which stem in part from environmental pressures. The social system and the physical environment make demands on the person which are at times in conflict with his own motives. In addition, they arouse various motives, and thus bring them to conflict, which otherwise might not be aroused. Therefore, environmental factors cannot be excluded from a complete treatment of conflict. It is also apparent that the self is often an important
factor in many kinds of conflict. That is, not only does the conflict involve tendencies for the person to do things he cannot, ought not, or prefers not to do, if he does them he often loses self-esteem or otherwise undermines his self identity.

With an expanded theory of conflict, the necessity for a full range of coping procedures, including both problem solving and the ego defenses, is obvious. Moreover, the person's ability to cope with various kinds of conflict is based on all the parts of the total psycho-social system -- on his cognitive structure, including the organization of his psychological environment; on his abilities, skills and personal resources; on restrictions, supplies, and supports in the environment; on the rest of his motivational system; and finally on the way all of these are organized around his self identity.

Major Conclusions

From this very brief and sketchy discussion of personality variables, and theoretical orientations, it is perhaps quite clear that a great deal of thinking and conceptual refinement are required before anything but early exploratory research can be conducted meaningfully. Systematic research must await somewhat more systematic conceptualizations. (This is of course not true for studies using only a few selected aspects of personality as conditioning variables.) A number of weaknesses are noted in our conceptual scheme at the present and a number of directions for possible improvement are also indicated. First, the conceptual relations among the motivational system, the cognitive structure, and the self identity are needed. Then all three of these must be related to the psychological environment in conceptual terms. And finally, a theory of personal coping with conflict
must be based on, and formulated in terms of, these earlier developments. Enough progress has been made on these theoretical problems to formulate meaningful exploratory research--research which can contribute fruitfully to even more progress.
Chapter V
SOME PRIORITY PROBLEMS IN THE PROGRAM

Environmental Influences on Psychosomatic Diseases

Objectives

The purposes of this topic, and therefore the general approach we have taken, can be explained in terms of our general criteria for the selection of research topics. These reasons may be summarized in the following five points.

1. In this program we are interested in mental health variables which range from positive conceptions of mental health to negative conceptions of mental illness. Psychosomatic diseases are mental illnesses which seem particularly appropriate for study in an industrial environment first of all because they show a relatively high prevalence. Srole, for example, reports that 28% of his random sample in New York City have two or more psychosomatic diseases. Unlike the psychotics, the psychosomatic patients less frequently get weeded out from industrial jobs and placed in mental hospitals. Thus, this type of mental illness constitutes a large and important practical problem in industry. Furthermore, it is well known that environmental factors, including various aspects of the industrial environment, affect psychosomatic diseases; so it is reasonable to suppose that a more precise understanding of these relationships would open the way for programs of preventive mental hygiene via the improvement of the industrial environment.

2. For the purpose of understanding the effects of the industrial environment on mental disease, the psychosomatic diseases are good
dependent variables because there are relatively good measures available for many of them. Compared to psychoses and neuroses, there are more objective diagnostic techniques (such as the use of X-ray evidence in ulcers or rheumatoid arthritis), and the reliability of diagnosis is probably higher. Probably they are more sensitive variables in the sense that they appear with less extreme environmental conditions and often after only a very brief exposure. Moreover, Cobb has shown that at least one of these psychosomatic diseases, namely rheumatoid arthritis, can be measured with sufficient accuracy for research purposes by relatively simple interview methods using nonmedical personnel. It seems highly unlikely that such diagnoses can now be made for neurotic and psychotic diseases.

3. In the development of this program we must certainly devote considerable time and energy to exploring the interrelations among the various types of mental health variables discussed in Chapter II. Our multidimensional conception of mental health does not require that all these variables be positively intercorrelated; indeed, we would sometimes expect an inverse relation (such as is found empirically between schizophrenia and rheumatoid arthritis). For the most part, however, we do not have enough empirical data on these interrelations to even construct a theory. Progress in this area will not only increase our understanding of mental health, but it also promises some useful by-products. If we can establish relations between psychosomatic diseases and such psychological symptoms of stress as dissatisfaction with different aspects of the environment, worries, feelings of tension, etc., then these more sensitive psychological symptoms might be useful in the early detection of persons who, if no preventive measures are taken, will develop psychosomatic diseases.
Accordingly, this project is an especially appropriate one for exploring the interrelations among dependent mental health variables.

4. This project seems to be one good starting point for developing our general field theory of the interrelationship between the industrial environment, personality, and mental health variables. And this approach promises to be fruitful here. The psychoanalytic and psychiatric approach to psychosomatic diseases has too often neglected the effects of the environment and has almost always measured only the psychological environment as reported by the patient without any measurement of the objective environment. Epidemiological studies, on the other hand, have often concentrated on the objective environment with too little concern for the personality factors which may condition the effects of the environment. Accordingly the environmental variable chosen for study frequently includes such gross variables as rural vs. urban residence, occupation, and socio-economic status; and these variables are so vague and so global that it is impossible to determine what they mean to the person and how they interact with his particular personality characteristics. Our field theoretical approach, which assumes that mental health and illness is determined by a field of interacting personality and environmental variables, is also expressed by Hamilton; "...from the biologist's point of view disease is a maladaptation of the organism to its environment. Disease is regarded as a reaction between the organism and its environment. The environment implants the seed of disease into the soil, that is, the organism, and the result is the interaction of the two, occurring through some specific mechanism. This triad is fundamental in modern medical theory, where it is usually referred to under the names of the precipitating factors, the
predisposing factors, and the mechanism of the interaction" (Hamilton, 1955).

5. In general, we will attempt to select projects which exploit the research competence and facilities of the Institute for Social Research. One such competence has been in the measurement of the social psychological aspect of the industrial environment both from the subjective point of view of the respondent and relating that to more objective measurements of the same environment. More specifically, we have concentrated on the industrial organization and will do so in this project. The need for more precise measurement of the objective and subjective environment of the psychosomatic patient has been noted by Hamilton; "...if the stress of modern life plays a part in the development of psychosomatic disorders, it is not by its intensity, but through its particular quality. Research on these lines will need not only knowledge of medicine but also a deeper understanding of the nature of modern society and its development. No specific researches along these lines have yet been made, although there are plenty of vague generalizations, of which the foregoing is one, to be found in the literature." Thus a study on psychosomatic diseases fits our recognized need to collaborate with the members of the medical profession, especially in this case with epidemiologists, in an area where we can make a distinctive contribution.

Central Problems

In selecting the central problems for study we have tried to consider simultaneously the dependent psychosomatic diseases, the independent environmental variables, and the conditioning personality variables. However, most of the clinical studies of psychosomatic diseases do not include
good measures of the environment, and most of the epidemiological studies do not include personality variables. Neither have been much concerned with organizational theory. Thus, we have tried to fit together incomplete findings from quite disparate sources and to interpret them in a way which fits our field-theoretical model. Not all of these considerations can be stated simultaneously, so we will first indicate some of the main reasons for choosing as a central problem the effects of organizational status on ulcers, hypertension and rheumatoid arthritis.

No attempt will be made here to review all the studies which indicate the effects of the industrial environment on psychosomatic diseases. Suffice it to point out that this relationship is indicated in a variety of quite different types of studies. In a broad epidemiological approach, Halliday notes a threefold increase in ulcers from 1870 to 1930 in Great Britain accompanying the major period of industrialization and points out that the shift from a predominance in women to a predominance in men indicates that the data can hardly be interpreted as artifacts of measurement (Halliday, 1947). At the other extreme, many clinical studies of individual patients have shown that the onset of an ulcer is associated with a precipitating factor in the patient's work environment. In between these extremes, one finds studies on the effects of the industrial environment of a single organization on the incidence of ulcers. Perhaps the most significant of these for our purposes is a study at the Phillips factories in Holland (Vertin, 1954), which showed that the incidence of ulcer among foremen was seven times as high as it was among skilled workers in the same factory. In the same study he found significant differences among the different factories within the same company. Thus,
there can be no doubt that ulcers are affected by factors in the industrial environment, including variations in social status within a specific factory.

In the writings on cardiovascular disease a good deal of attention has been devoted to occupational stress, especially to executive stress presumably related to responsibility. The findings, however, are contradictory. Several studies, which lack adequate controls, have reported a higher incidence among executives. In one of the better controlled studies of executive stress, Lee and Schneider examined the effect of status on hypertension and arteriosclerosis by comparing nonexecutives with three different levels of executives (Lee & Schneider, 1958). They found that the executives had approximately half the incidence of arteriosclerotic diseases as they found in the nonexecutive group (consisting of white collar workers such as stenographers, secretaries, clerks, assistant supervisors, and supervisors). It seems probably that this nonexecutive group included those supervisors whose status level was similar to the status of the foremen in the study by Vertin. Thus it seems likely that the status hierarchy within a specific organization is an important independent variable but the nature of the relationship is not known. Following the findings of Vertin and of Lee and Schneider we should pay special attention to the difference between foremen and workers and also between foremen and executives, but it would be wise to study as much of the status hierarchy as we can encompass and still maintain an adequate number of cases at each level.

Studies on the effect of social status in general on mental health are even more numerous, partly because social status is defined broadly enough to include many specific variables. The recent studies by Rennie
and Srole (1956), and by Hollingshead and Redlich (1958), demonstrate the effects of social class on psychoses, neuroses, and on psychosomatic diseases. The former show that different psychosomatic diseases show different relations to socio-economic status, and that even within the same status there are large occupational differences, e.g., 42% of executives compared to 25% of professional men report two or more psychosomatic ailments. More specific studies of Cobb show that rheumatoid arthritis is related to income, to education, and especially to the discrepancy between them (King & Cobb, 1958). Many studies of Negro-white differences fit the same pattern of class differences (Rose, 1955); while recent studies demonstrated parallel differences among religious groups differing in social status (Kleiner, 1959).

In order to state specific theories about how social status interacts with personality factors to influence mental health, it is essential to have more precise and specific concepts for describing the social environment. A complex quasi-concept like socio-economic status contains many different variables which may affect different personality characteristics in different ways. Accordingly there is small hope of confirming clear and specific hypotheses with such a concept; more refined concepts are needed. Indeed it seems probable that much of the controversy between specificity and generality in theories of psychosomatic medicine stem from the fact that personality variables have been fairly vague and general, and environmental variables have been almost completely vague and nonspecific. Thus many of the findings necessarily tend more toward generality.

What, then, are the more specific variables characterizing differences among levels in an industrial hierarchy and how should we
conceptualize these variables? In the context of this study, we think it important to study **formal authority, responsibility, dependence-independence, income, and prestige**. These variables will be examined in more detail after we consider the personality variables which condition their effects on ulcers, hypertension, and rheumatoid arthritis.

**Personality Factors in the Psychosomatic Diseases**

Our knowledge in this area is by no means secure since most of it is based on clinical research with serious methodological weaknesses. The viewpoint of the investigator may determine the findings even more than the nature of the patient. Thus, many psychoanalysts find that sex, aggression, and dependency are important determinants of various psychosomatic diseases just as they find these problems in most other patients. On the other hand some more recent studies are employing more objective methods and more adequate controls. We shall try to pick out those personality characteristics which seem most important, are supported by the best evidence, and are most likely to be relevant to the dimensions of status.

Psychiatric writers have frequently emphasized the importance of dependency needs and of dependency conflicts as personality variables which condition the effect of environmental stress on ulcers. At the moment we will not attempt to choose among a variety of ways of expressing the same or very closely related variables: "dependency needs," "need for independence," "oral dependency," "passivity-activity," the "compliant personality" (Horney, 1945), the "receptive character" (Fromm, 1947), or the "intaking" vs. "retaining" vs. "eliminating" classification (Alexander, 1950). Eventually, we shall attempt to so
define these personality variables that they specify the types of environmental situations which can satisfy these needs or arouse these conflicts. One's position of dependence or independence in the status hierarchy is clearly relevant to such needs.

Recent studies (e.g., Weiner et al., 1957) and a review of the literature (Mirsky, 1958) have come to isolate three parameters of importance in the etiology of peptic ulcers: a high level of pepsinogen secretion, a stressful environment, and a particular personality constellation. The personality constellation centers around intense oral dependent wishes, difficulties over hostile impulses, and tendencies to please and placate. The basal level of pepsinogen secretion seems to be determined, at least in part, by hereditary factors and can be looked at as a predisposing factor. The transient increases in the rate of pepsinogen secretion may be related to certain environmental situations; it is also known, on the other hand, that patients may show the same high rate of gastric secretion during symptomatic intervals when the lesion has healed, as during exacerbations when the lesion is active. The analysis of environmental factors in the previous studies has been generally inadequate. The most frequent reference is to a nonspecific stress, and when some writer implicates dependency needs, this is usually done as a result of post hoc analysis of his environmental situation and lacks independent support. Whenever the person may be living in a situation of chronic stress at a constant level, then a constant high level of pepsinogen could be caused by the environmental stress, by some hereditary physiological factor, or by some constant personality characteristics. Thus no unequivocal interpretation can be made of these studies. We need further research on the effects of both emergency stress and chronic stress on
the level of pepsinogen and, at the same time, on the incidence of ulcers.

In conceptualizing dependency needs for the purpose of such studies, we must also pay attention to the findings in the Institute for Social Research on the need for independence as a variable which conditions the effects of the organizational environment on such mental health variables as satisfaction and on other variables like job performance or resistance to influence. In a field experiment on decentralization of organizational control, it was found that workers who were accorded more participation in decision-making reacted in accordance with their personality trends, including the needs for independence and dependence; those with a high need for independence reacted favorably to increased participation while those with a low need for independence reacted unfavorably (Tannenbaum & Allport, 1956). Using some of the same items for measuring the need for independence, a later study showed that the effects of participation on performance and satisfaction increase with increasing need for independence (Vroom, forthcoming). A laboratory experiment has also shown that the need for independence conditions the amount of conformity to a supervisor (Zipf, 1958).

One possible interpretation is to assume that both dependence and independence are simply two opposite ends of the same scale. However, the above studies do not really support this view. The clinical studies, especially, indicate that conflict over dependency may be important. Such conflict implies two entities which are opposed. The need for dependence is opposed to the need (or value) for independence. Perhaps the latter should be viewed as an internalized norm produced by parental independence training. In any case it has the conceptual property of the
ability to induce force fields which are opposite in direction to those induced by dependency needs or wishes.

If we assume two such dynamic agents within the person, both can be conceptualized as aspects of ego identity. For example, the person's sub-identity as foreman may include a dimension of dependence-independence which represents an ordered scale of various behaviors which a foreman might typically engage in. Along this scale we may conceive two force-fields: the first represents dependency needs (whether conscious or unconscious) with the gradient of forces so distributed, for example, that the less dependent the behavior the stronger the forces toward more dependent behavior; the second force field represents values or needs for independence with a gradient of forces which may vary in strength and distribution quite independently from the first force-field. Thus, various strengths of conflict between the two can be produced at various points along the scale. Strictly speaking, this behavioral dimension and its associated force fields represents potential behaviors and potential forces which could be aroused given the proper environmental situation.

Presumably the values about how independently a foreman ought to act have been learned primarily in industrial settings and especially while in the role of foreman, though possibly other roles such as father, teacher, executive, etc. have contributed somewhat to this same value. Thus, the value is an internalized role or norm. Accordingly it has the same conceptual property of a force field along a behavioral dimension. Thus the internal sub-identity and the environmental norm are commensurate, and it becomes possible to measure on the same scale the congruence or conflict between the foreman's values and the demands of his role.
Turning now to hypertension, what are the most relevant personality variables? Most of the studies have tested hypotheses that implicated aggression as a central factor. Thus, Miller (1939) found that self-accusatory depressives and paranoids who accused others of aggressive tendencies toward themselves (both were seen as inhibiting aggressiveness) had higher blood pressure than schizophrenics. Recently, Silverman et al (1957) have shown that g-tolerance, a rather good measure of cardiovascular stress responsiveness, could be predicted from the direction of aggression, assessed from TAT-type stories. The work of Funkenstein and his co-workers (1954, 1957) is also of great interest here. He has found that psychiatric patients with elevated systolic blood pressure reacted in two ways to a dose of metholyl chloride: with a sustained and sizeable drop in blood pressure or with a brief, small drop. These two groups, with their epinephrine-like and nor-epinephrine-like reactions, respectively, could also be distinguished as the "anger-in" and "anger-out" groups, respectively. Funkenstein's later work with Harvard undergraduates (1957) has amplified these results and has coordinated the anger-in and anger-out responses to certain socialization experiences of his subjects. However, it must be noted that: (a) the Funkenstein studies do not predict whether or not hypertension will occur; they only predict the reaction to metholyl; (b) it is not clear what the relation is between the direction of anger and inhibition of aggressiveness; Miller's paranoids look like an "inhibited" anger-out group, while his depressives are like an "inhibited" anger-in group. It seems clear that we need further studies of the direction of aggression (in or out) in relation to the control of aggression. Both of these are known to be related to child-rearing
practices which in turn vary with social class and religious background. Thus the early environment affects both emotional expression and the correlated physiological responses to stress, presumably through some basic personality traits.

The contemporary environment also affects blood pressure and other physiological measures. Laboratory experiments have demonstrated the effects of loud buzzes, bright lights, success and failure on a task (Jost et al, 1952), pain (Malmo & Shagass, 1952), delayed auditory feedback (Funkenstein et al, 1957) and other stresses. More important for our purposes are the studies on the effects of the work environment such as the studies of executive stress cited above. The intense stress of battle may produce collapse within 72 hours, a response which can be predicted by the hyperventilation index which is typically low in patients with functional cardiovascular disease (Friedman, 1947). But even so subtle a factor as the mood of the attending physician has been shown to affect blood pressure.

King's review of the literature on psychosocial factors affecting rheumatoid arthritis (19 ) makes it clear that we still do not have a clear picture of the role that psychological and social factors play in predisposition, onset, or exacerbation. Some unpublished work by King and Cobb (19 ) reveals that a positive index of rheumatoid arthritis was related to the following social data: low income, low education, termination of marriage, worrying more than others, having four or more children (for women only), and the combinations of low education and high income or high education and low income. They also found that women patients had significantly lower scores on identification with mother, perceived mother as giving less affection and more undeserved punishment
and more harsh discipline as compared to controls. These findings may explain the difficulties in sexual identification and adjustment which other investigators have noted in women with rheumatoid arthritis. King also found that rheumatoids less often reported having a temper; this control of aggression supports clinical findings and also studies of the body image. Using the Rohrschach, TAT and Draw a Person tests, it was found that rheumatoids report seeing hard boney creatures like turtles and crabs and also empty containers (Cleveland & Fisher, 1954). These responses are interpreted as showing strong control of aggression. They also found that rheumatoids, compared to patients with low back pain, were significantly higher on voyeurism. Unfortunately we cannot be sure that all these differences do not reflect characteristics of patients with low back pain. Considering all the evidence, though, it seems that control of aggression is of considerable importance in the etiology of rheumatoid arthritis. Perhaps it should be noted here that aggression has also been reported to play an important role in migraine headache.

The Dimensions of Status

Authority. The **formal authority** of a person's role is perhaps the most important aspect of his status in a factory, but authority is not a single dimension. As we have noted in Chapter III, authority is a higher order concept which involves three types of power: legitimate power, reward power and coercive power. To the extent that a person has a strong need for power (cf. Joseph Veroff's conceptual definition and projective picture measures of this need), he will be frustrated in a position of low authority; and this deprivation may have other
consequences for his mental health. However, perhaps the variable of formal authority will more often influence mental health indirectly. For example, a person in a position of high power is less likely to receive aggression from others and is more able to aggress against others without fear of retaliation. Conversely a person with low power must control his hostility, a demand which may be stressful for the rheumatoid.

Responsibility. Along with increase in authority and status in an organization there is also increase in objective responsibility. Several writers have suggested a relationship between responsibility and ulcers as well as other mental health variables. Cameron (1944) notes that "tensional breakdown" in industry may be caused by increased responsibility and Russell Fraser (1947), in England presents very good data to show that responsibility is associated with neuroses (his measure of neuroses includes psychosomatic diseases). Much of the "overwork" cited by Russek and Zohman (1958) as the major cause of coronary heart disease seems also to involve a large amount of responsibility. Many others have also noted the relation between cardiovascular disease and responsibility; but Lee and Schneider (1958) found that executives were healthier. They do point out that this association may be because "the healthier go higher." In any case the amount of stress depends on the life space of the individual. "The lack of an increased incidence of hypertension among executives as a "stress" phenomenon further emphasizes the importance of reaction by the individual to his environment, rather than the physical and intellectual demands of that environment per se. Stress is a relative and a subjective matter. When the inherent capacities of the individual to perform fail to measure up to the demands of his world, the harmonious balance between the subject and his environment is disrupted and a stress reaction takes place in the individual. This response
occurs regardless of whether the factor in the external environment is a speedily approaching deadline for a frantic technical assistant or the threatened failure of a large business venture for the director in charge" (p.1450). Thus we must study responsibility as it exists for the person in his "life space organization" (see Chapter III) in relation to his position on the relevant ability dimensions of his occupational sub-identity (see Chapter IV).

More specifically, we hypothesize that when the perceived responsibility of the role is greater than the person's perceived ability to bear this responsibility, the resulting stress can cause ulcers, coronary heart disease, and loss of self-esteem. We note here that this hypothesis is similar to ones stated in the project on self-esteem, which is described later in this chapter. Two aspects of ability should probably be distinguished here; (a) ability to perform whatever activities are required by the role, whether it is operating a machine, selling bricks, or making financial decisions; (b) ability to bear the responsibility emotionally without being upset by fear of failure. Probably the content of responsibility interacts with personality factors in determining how stressful it is. A person may be responsible for other people, for machinery and materials, or for financial decisions; and the kind of responsibility which is stressful for one man may be comfortable for another. For some types of personality, the "responsibility forces" (as defined by E. Pepitone, 1952) involved in knowing that the welfare of others depends upon your performance may be stressful; others may be more distressed by financial responsibility. Again it seems desirable to measure responsibility both objectively and subjectively.
Many organizational theorists have espoused the principle that authority should always be commensurate with responsibility. Some have noted that discrepancies can cause mental health problems. For example, Suojanen (1948) states "decentralization cannot work where responsibility is exacted of the subordinate commander but where the authority to decide has been withheld. When this occurs, the higher commander is at fault for he has not made a genuine delegation of authority. He shows his lack of confidence by expecting his subordinate to carry out his assigned mission while, at the same time, withholding from him part of the resources that he needs to get the job done. The superior may pay lip service to an abstraction which is called "delegation" but, when the chips are down, he shows that he did not trust his lieutenant. This is one of the penalties of a narrow span of control which seeks to insure that each "i" is dotted and each "t" is crossed. Unfortunately, it is the superior's eraser that wears out before his pencil is used up, and it is the subordinate who ends up in the hospital with an ulcer or a coronary." We shall assume that authority, like ability, is one of the resources required to carry out certain responsibilities. Lack of authority differs from lack of ability, however, in that it is an external barrier to performance and therefore more readily permits the person to protect his self-esteem by blaming his failures on external circumstances.

Dependence. What is authority for the superior is dependence for the subordinate. By the amount of dependence or independence we mean the extent to which the subordinate must behave in accordance with orders and instructions from his superior rather than making the decisions for himself. Thus, dependence is inversely related to authority, power, responsibility and to "participation" as defined in a forthcoming article by French,
Israel, and Aas. Similarly, a supervisor who uses "close supervisory practices" as defined in the Survey Research Center studies also makes the subordinate more dependent on the superior. Thus, dependence seems to be identical to certain definitions of "passive control" though it may differ from other definitions (Tannenbaum, 1956a). Further work on the systematic conceptual definition of these concepts is required.

In order to understand how environmental dependence, whether in the foreign hull or in the life space, interacts with dependency needs in the person, we shall also have to consider informal dependence relations. For example, a person may be very dependent on a friend who has the same status in the organization. It has been suggested that a person who is dependent on another cannot express aggression against that other, although this may differ for a friend and for a superior authority with coercive power (based, for example, on his ability to fire a subordinate for "insubordination"). It has already been suggested that the inability to express aggression is a cause of rheumatoid arthritis. In studying dependence, therefore, it would be desirable to examine its relations to environmental restraints against aggression and to internalized controls on aggression.

Income. A fourth independent variable which is extremely highly correlated with status in the organization is income from the organization. Income is an important component of measures of social class and of socio-economic status. Thus, the findings that these latter two stated variables are related to psychosomatic diseases and to other mental health variables may be interpreted in terms of income variations. However, Cobb's finding that income is related to rheumatoid arthritis but that the discrepancy between income and education is even more strongly related suggests that
the underlying variable may be feelings of success and failure and social mobility. Accordingly our measures of income should include rate of increase of past income from the company and the present level of income in relation to the income of other employees with comparable tenure and level of education. Some companies have suggested these measures as the best possible measures of objective executive success. We must also obtain measures of income as subjective success; this does not mean merely the person's satisfaction, or dissatisfaction with his income but rather the extent to which it affects his self-esteem and causes pride or shame.

Prestige. Higher status and income in an organization is closely related with higher prestige and esteem in the eyes of others. We know from studies of Zander, Festinger, Israel, and others that prestige in the eyes of a reference group is a very strong determinant of a person's own self-esteem. Since we consider self-esteem important to mental health, it is necessary to include measures of self-esteem and of prestige in studying the effects of different roles on mental health. We note that Jurgin Ruesch (1948) in his study of ulcer patients, found low self-esteem associated with many references to mother. Similarly, Cameron (1944) reports that low self-confidence is a factor predisposing one to "tensional breakdown."

All of the data relating social class, income, Negro-white differences, etc. to mental health can be interpreted as mediated by self-esteem.

It is a curious paradox, confirmed in several studies, that the higher social classes suffer more from depression, manic depressive psychoses, and other disturbances of self-esteem. This paradox can be understood if one considers the specific reference groups used by each social class, and it underlines the importance of collecting data from the subjects concerning their reference groups with respect to prestige, status in the organization,
income and the like. Consistent with Slater's hypotheses, we expect that a role having high formal status will be highly evaluated both by the relevant reference groups and by the role occupant himself. For such persons the occupational self-identity will become a relatively important part of the ego identity. Thus, the higher one's status in an organization the more one's mental health will become organized around an occupational sub-identity and the less it will be possible to insulate disturbances in the work life from the rest of the person's life. Here again we will also measure the subjective perception of being valued by others (Jackson, 1953).

**Additional Independent Variables**

So far we have described the major independent variable status in the organization in terms of five dimensions. Now we must add three other independent variables which cannot be considered as dimensions of status but are closely related to the hierarchical structure of a factory. They should be included in this study because they are probably related to dependency and to the psychosomatic diseases. These additional independent variables are: **role conflict**, conflicting loyalty demands and **separation**.

**Role conflict.** The amount of role conflict is included here partly in order to tie this project in with our other project on the same topic. By role conflict we mean that the occupant of an office is subjected to incompatible role prescriptions, either by the same role sender or by different role senders. In the latter case role conflict becomes similar to conflicting loyalty demands (see below). Gross, Mason & McEachern (1958) have found that the amount of role conflict of both types is related to the amount that a man worries about his job. And the amount of worry is a
mental health variable which is also related positively to the incidence of rheumatoid arthritis (Cobb, forthcoming). We would also expect role conflict to be related to other mental health variables such as feelings of tension, nervousness, insecurity, turnover, and absenteeism. In view of the tendency to distort perceptions of conflict it will be wise to obtain both subjective and objective measures of role conflict.

Conflicting loyalty. Roethlisberger and many others have stressed the conflicts that the foreman has due to his conflicting loyalty to the men on the one hand and to the company on the other (Roethlisberger, 1945). Two studies in the Institute for Social Research are especially relevant to this problem. Willerman’s study of conflicting loyalties to the union and to the company demonstrated that relevant intergroup situations (including the perceptions of the foreman and the conceptions of the union steward) will be structured by the perceiver in such a way as to minimize the conflict in his group identification (Willerman, 1949). The stronger the conflicts between the two groups, the stronger these forces that distort reality. Results entirely consistent with these were obtained in Kahn’s study of workers who were promoted to become foremen or were elected to become union stewards (Lieberman, 1956). With the change in role there are marked changes in the attitudes of the person, especially toward issues which are relevant to union management conflict. A worker who becomes a foreman, for example, changes in the direction of believing that the union should have less power whereas the worker who becomes a union steward changes in the opposite direction. In these two studies the forces which distort perception and which change attitudes stem from the basic relations between union and management. Such conflicts between groups create a situation in which P’s favorable behavior toward one group
is interpreted as disloyalty toward the other group. At higher levels in the status hierarchy there are roles whose function is to coordinate two parts of the organization, for example, to coordinate production and sales, and these two parts may also have partly conflicting goals so that the coordinator is subjected to stress from conflicting loyalties.

Probably there are several personality variables which condition the amount of stress and strain involved in such roles, but perhaps the most relevant is one of the 13 variables which Blum used in his studies of the oral character—namely the inability to divide loyalties. Of course we would expect dependency needs to be relevant, and we would predict that loyalty conflicts may well account for the high incidence of ulcers found among foremen (Vertin, 1954).

Separation. Separation is not a well defined concept, yet it points to some very important environmental variables influencing mental health. In his chapter on "Sociological Concepts and Psychiatric Research," Schneider notes that the social environment can influence mental disease in two ways: (a) the personality is formed in such a way that mental disease may be the outcome of encounters with certain situations of stress in latter life, (b) the "normal" individual encounters social situations which make impossible psychic demands on him (Schneider, 1953). Among the latter, he lists nine major types of hypotheses of which the following factors seem to involve separation: (1) "the isolation of the individual from his fellow man or social groups; few entrenched social relationships, paucity of organization memberships"; (2) "the necessity of making an abrupt transition from one role to another, or from one stage of the life cycle to another, or from one culture to another, or an abrupt adjustment to a new social situation (e.g., that resulting from a death in a family), or to social change";
(3) "the disorganization of a social system which is emotionally important to the individual—e.g., as in the case of broken homes"; (4) "inability for whatever reason of the individual to secure social acceptance."

(5) "The mobility of the individual in relation to the class structure, in either direction, either objectively or subjectively." All of these environmental situations or events may involve separation. Many of them are likely to be related to dependency needs within the person and others to needs for affiliation with other persons or groups. Some of them, for example broken marriages, are known to be related to rheumatoid arthritis (King & Cobb, forthcoming). Similar separation events occur within the factory, and there is evidence that they are related to resistance to technological changes, to turnover, to absenteeism, to job satisfaction, and probably to many other mental health variables. Accordingly it seems wise for us to obtain measures of the major separation events both in the home situation and in the factory for patients whose psychosomatic diseases are being studied. Our measures of separation should include membership in cohesive groups since Stanley Seashore (1954) found that feelings of nervousness and other mental health symptoms were inversely related to such belongingness. Probably it is important to measure the change in social contacts because Russell Fraser reports that a decrease in social contacts was the environmental circumstance (out of fifteen measured) which was most commonly associated with neurosis in the factory (Fraser, 1947).

**Additional Dependent Variables**

As we have discussed the various dimensions of status in the organization, and the additional independent variables, we have also mentioned the effects on mental health which might be expected. Here we will attempt
to briefly summarize these dependent variables by listing eight main types. Then we will indicate briefly the kinds of interrelations among them which we will be interested in studying.

We started by choosing as central dependent variables three psychosomatic diseases: peptic ulcer, rheumatoid arthritis, and cardiovascular diseases. Of course it would be valuable to have data on all the psychosomatic diseases for the population under study, but it seems likely that such a large mass of medical data might be difficult to obtain. A medical examination for ulcers should also include a measure of the level of pepsinogen, for this could greatly increase the precision of our test of the relationship between the environmental variables and incidence of ulcer. But if one serological test is to be undertaken, it would be most efficient at the same time to study the cholesterol level, perhaps the blood clotting time, and a latex fixation test for rheumatoid arthritis.

Second, we have indicated that we will obtain both objective and subjective measures of the five different dimensions of the status of the person. In most of these cases, it will be possible to measure the person's contact with reality in terms of the discrepancy between his own perception of a variable and a more objective measure of it. These discrepancy scores will measure an important aspect of mental health.

Third, we should measure the attitudes toward and the satisfaction and dissatisfaction with each of the dimensions of status, the position in the company, and the opportunities for promotion in the status hierarchy.

Fourth, we should obtain specific measures of the degree of satisfaction of the major needs involved in the above theories—namely, dependency needs, need affiliation, need power, need achievement, and aggressive needs.
A fifth category of dependent variables are the psychological symptoms of anxiety such as feeling tense, nervous, jittery, worried, etc.

A sixth category is the physical symptoms of stress, tension, and anxiety including such things as the inability to sleep, excessive perspiration, and other symptoms that appear on such lists as the Cornell Medical Index and the Minnesota Multiphasic Personality Inventory.

Seven, we should collect data on psychological symptoms of escape and withdrawal from the work situation such as turnover, absenteeism, and requests for transfer to a new job.

An eighth and final type of dependent variable would be measures of aggression, hostility, and interpersonal conflict. We have already noted that the control of such behavior is especially relevant for rheumatoid arthritis and for cardiovascular diseases.

Certain interrelationships among these types of dependent variables may now be noted. First of all, we should expect some of the psychological variables such as attitudes, dissatisfaction, and feelings of anxiety or tension to occur before the person developed psychosomatic diseases such as ulcers or rheumatoid arthritis. To the extent that such temporal relationships could be demonstrated, it would become possible to predict the incidence of these psychosomatic diseases and hence to take preventive action before they develop. Presumably these psychological symptoms would be more sensitive in the sense that they would show up under much less stress than might be necessary to produce the related psychosomatic diseases. Finally, they may be more specific diagnostic indicators of environmental stress in the sense that they point to a specific environmental variable more precisely than, for example, does a physical symptom like inability to sleep at night. To the extent that such specific diagnostic symptoms
can be discovered, we shall be able to know what aspects of the industrial environment should be altered in order to improve mental health.

**Some Design Problems**

No attempt will be made here to present a study design, but we will discuss some design problems which occur in most of the industrial studies.

**Confounding.** The usual design is a cross-section comparison of persons in different roles and at different levels in the organization. Such comparisons present a serious difficulty of interpretation: any obtained difference on a dependent variable might be due either to the effect of the environment of that role or to the effect of selective factors determining what kind of people enter the role. We have already noted, for example, that good health may be required to become an executive. These selective factors can be either imposed by the organization, as in the case of selection and promotion procedures for various jobs, or they may involve self-selection of the kind that is involved when persons of a given personality type apply for a particular type of job. How can we avoid this confounding? We shall discuss several possibilities.

To the extent that we know the selective process and therefore know the personality characteristics which have been selected, we can measure these personality variables and introduce them as controls in our analysis.

Another possibility, short of a longitudinal study, would be to collect not only "lifetime incidence" data as did Srole, but also to get some notion of changes over time by attempting to get incidence data per year in each different job which a man has held. For example, what was the annual number of psychosomatic diseases (perhaps of a specific kind) that the subject had first as a worker, later as an assistant foreman, then as a
foreman, finally as a department head? Of course such retrospective data will be most reliable where good medical records already exist.

Perhaps the most reliable way to solve this methodological problem is to conduct an actual longitudinal study in which the person is followed through from one job to another with a medical history taken in each job and with measures of the environment taken in each job. The initial planning for this study should include at least the possibility of supplementing a main cross-sectional design with a later longitudinal follow-up.

In experimental studies of the effects on stress, this problem of confounding is eliminated by subjecting the same subject to one or more stress situations and nonstressful situations. An analogous design might be employed in a field study if the person is already in two or more distinct and separable environments. We have already assumed that every person is in a work environment and a distinct and separate home environment, but it may be that there are also sometimes such distinct and different environmental situations within the work environment. A foreman, for example, may spend a considerable amount of time alone in his office doing paper work, and he may spend another considerable amount of time out in the shop supervising and instructing his subordinates. These two physical and social environments are different, the functions performed are different, and the activities involved are different. It is quite conceivable that a person might find one situation disagreeable and stressful while the other was pleasant and relaxing. If such differences do exist, among different "behavior settings" on the job (Barker & Wright, 1954), then we have the possibility for a much more precise test of the effects of environment on some of our dependent variables. Accordingly,
we should attempt for each of the roles selected for study to distinguish the more important different "behavior settings" which are recognized by the role occupants. Then for most of the dependent variables which are measured by interview, we could ask each subject to compare two or more behavior settings. "Are you more satisfied with the paperwork involved in your job or with the supervising of your subordinates?" "Do you feel more tension at staff meetings or while you are doing paperwork?" Responses to these types of questions could then be related to the environmental variables involved in the different behavior settings; and in this comparison personalities could be exactly held constant since the same person will be reacting to two or more environmental situations. Of course the major dimensions of the behavior settings which should be measured are the dimensions of status stressed above insofar as they are relevant. Obviously income will not vary from one behavior setting to another; but probably the amount of dependence will vary tremendously depending upon whether the person is interacting with his subordinates or with his superiors. In addition there may be other special characteristics of behavior settings which should be measured.

The industrial vs. the home environment. We have already hypothesized that responsibility on the job is associated with ulcers and with other mental health variables. In addition, responsibility at home may be the genotypic variable underlining Cobb's findings that rheumatoid arthritis is more frequent among women with four or more children as well as Vertin's findings of a linear relationship between incidence of ulcer and number of children. Cobb also finds that rheumatoid arthritis is positively related to the amount of worry; and it would not be unreasonable to suppose that some of this worry was caused by excessive responsibility. If both home
and job responsibilities tend to produce both ulcers and rheumatoid arthritis, then a more precise test of these four hypotheses and a more precise prediction of the incidences of these two diseases can be obtained by collecting data on both job and home responsibility from the same respondents.

Similarly, dependency needs and conflicts within the person will be affected by dependency relations at home as well as on the job. Here again we need to collect data on the home situation, if for no other reason than to sharpen our analysis of the relationship between job dependency and mental health variables.

Likewise, in studying the effects of role conflict on women workers, it would also be wise to collect data on their home situation since the work role itself is often in conflict with the home role for women.

One of the important variables in the home situation which has been found to be associated with mental health is homes broken by divorce or separation. These separations may well be more important than those occurring on the job. If so, they might mask the relations predicted by our hypotheses unless they were controlled through measurement. In conclusion, whenever one of our variables in the industrial environment is also strong in the home or community environment, it would be desirable to measure both environments.
Role Conflict and Ambiguity in Relation to Mental Health

The Background of the Problem

Many observers have remarked the unresolved problems of self-identity in contemporary American life. The haunting question "Who am I?" is asked, and answers are sought from an environment which is often blurred and unresponsive. Riesman's (1950) accusation that Americans are other-directed finds some degree of confirmation in Asch's (1952) experimental demonstrations of conformity. Moreover, the problem of identity and the problem of successful conformity become tremendously complicated in an industrial society which is in a ceaseless and accelerating state of technological change, and which is far from having achieved integration around a set of major values. Thus, to the tragedy of other-directedness must be added the irony of conflicting and ambiguous directions. It is not accidental that the mental illnesses of our time are manifest so frequently as problems of orientation. Observers of the industrial scene have pointed out several sources of stress for the person in the large scale organization. As will be noted later, much of the work of the Institute for Social Research bears on this problem. Among others, Roethlisberger (1945) has demonstrated that a particularly troublesome spot in many organizations is that of the first line supervisor, the foreman. The pressures from management and from the workers are often contradictory and place the foreman in "the middle," in conflict. Argyris's recent book (1957), which is subtitled "The conflict between system and the individual," also draws attention to this source of stress. Argyris also argues that the worker-foreman-management system tends to perpetuate conflict for the foreman, to the point that either he suffers continual stress and anxiety or defends by denial, withdrawal or hostile aggressiveness. Walker and
Guest (1956) point to further manifestations of conflict for the foreman. With extensive observational data on assembly-line operations, they report the problem the foreman faces as a member of two groups—management and workers—and the conflict he experiences due to contradictory pressures from these two groups.

The research of Gross et al. (1958) on the role of the school superintendent indicates that problems of conflict and uncertainty exist in roles quite different from that of the foreman. In a sample of 105 superintendents, four aspects of the role were analyzed for perception of conflict. In the least conflictful aspect of the role (i.e., time allocation) 53 per cent of the superintendents reported conflict, while in other aspects of the role (e.g., budget or teacher salary recommendations) as many as 91 per cent of the superintendents reported conflict. These conflicts are conceptualized by Gross and his colleagues in terms of contradictory expectations from persons in significant "counter positions." Their treatment includes a theory of role conflict resolution.

Two theoretical treatments in the area of social roles represent outstanding contributions to our conception: Rommetveit (1954) and Gross, Mason and McEachern (1958). Both these treatments have relied on the earlier works of Linton (1936), Newcomb (1950) and others dealing with role and related concepts. Rommetveit developed and conducted research on the notions of sent and received roles. Discrepancies and conflicts can be readily represented within this system.

Gross et al. have developed a similar system for the analysis of role relations which they utilized to considerable success in empirical field research. In addition they found that conflict within the school
superintendent's role led to tensions and dissatisfactions which reduced the adequacy of the superintendent's behavior in the role. While the concept of social role has a long history, these two works have perhaps done most in recent years to enhance its conceptual clarity and methodological rigor.

Several authors have suggested personality variables dealing with the person's need for meaning and structure in the environment. Frenkel-Brunswik's (1949) treatment of intolerance for ambiguity is a notable example, as the research on need for cognition (Cohen, Stotland, & Wolfe, 1955). In a broader sense, Festinger's (1957) theory of cognitive dissonance and Heider's (in press, 1958) theory of cognitive balance also illuminate the negative effects of ambiguity and conflict in the perceptual field, and point out tendencies toward balanced structure.

Some of the findings above have suggested that an ambiguous environment may lead to tension and anxiety, presumably because of the potential threat of unanticipated and unknown dangers. The theories upon which projective tests are based (Lindzey, 1952, Atkinson, 1954, 1958) also include the hypothesis that personality dynamics are sensitive to environmental ambiguities. The importance of the projective approach for our research is its demonstration that under conditions in which the environment provides insufficient cues for behavior, the person's internal propensities and conflicts may become apparent. The emergence of such material may in itself arouse anxiety. If the ambiguity also undermines the person's usual coping techniques, this may lead to more neurotic defensive behaviors (Anna Freud, 1946).

**Theory of Self-Identity.** While the concept of "self" has a long history in the social sciences, James (1890), Cooley (1902), Mead (1934),
its importance for mental health has been recognized only more recently. The stature of the "self-identity" concept has been enhanced in psychoanalytic and psychiatric theory by recent works of Erikson (1950, 1956), Ackerman (1958), and Dai (1955). Thus far, there has been relatively little systematic empirical research on self-identity, but its significance for mental health has been well established by clinical experience. Wheelis (1958) has stressed the widespread emphasis for Americans today on such questions as "Who am I?" and "What am I good for?" Vast numbers are searching (often without satisfaction) for some meaningful and important "place" in this complex and changing society.

Miller (in press) has enriched our conceptual treatment of the self-identity by such notions as its organization into sub-identities and behavioral dimensions, and has made important progress toward research techniques. Erikson's analysis of the ego-identity has dealt with this concept in a dynamic way, pointing to its place in the development of the total personality. As have the others, both Ackerman and Dai have drawn our attention to the multiplicity of identities held by the person and to their dependence on significant social groups and the person's roles in those groups. Ackerman's treatment of the complex dynamics of self-identity in social interaction within the family is supportive of our concern with the effects of social roles on one's sense of identity.

There are a number of sources which may contribute to the development of methodology in research on self-identity. The use of such projective techniques of the TAT type (Atkinson, 1958) can yield information on motivational tendencies in the core identity and on significant identity conflicts. Some work has already begun on the development of a "content-free"
method of measuring the organization of the self-identity which is primarily an adaptation of techniques developed by Zajonc (1954) for investigating cognitive structure.

Related studies in the Institute for Social Research. A number of earlier studies by the research staff of the Institute for Social Research, which bear on the problem of personal reactions to ambiguity and social conflict, have pointed to the importance of these problems for mental health, and have served as preparation for the more intensive empirical research now proposed.

1. Our first application of the role concept to the study of industrial organization was begun in 1948. In a study of a large auto factory the SRC staff made a number of comparisons among three basic populations—foremen, stewards, and workers. We found gross differences among these three groups with respect to role expectations, values, and attitudes. For example, 50 per cent of the foremen felt that they were somehow caught in the middle between management and the men. The responses of foremen who did not feel so caught were particularly interesting. Some of them refused to recognize any problem of differential expectations from management and men, their refusal strongly suggesting either insensitivity or denial. Others saw the problem of differential expectations very clearly, but stated that their function was to represent management irrespective of the men's expectations. This solution suggests a process of identification with one party to a conflictful situation, and rejection of the other. The same study suggested also the relevance of previous role experience in predicting a person's reactions to a present situation. Those foremen who had previously been union stewards were most sensitive to the conflicting expectations of men and management (Jacobson, Kahn, Mann, & Morse, 1951).
2. In a public utility, data from employees regarding their foremen were compared with management ratings of the excellence or promotability of these same foremen. It was found that the successful maintenance of balance in a conflictful position—that is, the ability to be seen by the men as pulling both for the company and for them—was most characteristic of the foremen who were judged by management to be most promotable. By contrast, the foreman who was seen by the men as pulling only for the company, only for the men, or only for himself, was judged by management to be least satisfactory in performance (Mann, & Dent, 1954).

3. In an appliance factory we took advantage of market fluctuations in demand to conduct a field experiment. Of approximately 2300 workers included in a survey of attitudes, values and perceptions in 1951, 23 became foremen and 35 stewards during the subsequent year. A comparison of their attributes before and after these role changes revealed a consistent pattern of changes in their goals, in their view of the industrial situation and in their notion of the prerogatives appropriate to union and management. Moreover, a subsequent reversion to their original work status which was experienced by some of these people reversed the process. Those who retained their new roles continued to change in a manner consistent with the pattern already begun. Our present notions concerning the effects of role expectations on the worker's sub-identity reflect this research experience (Kahn, 1950), (Lieberman, 1956).

4. In 1948 the Survey Research Center launched an ambitious field experiment involving the manipulation of the level of decision-making in a large clerical operation. In two divisions the hierarchical level at which decisions were made was raised so that employees and lower-level supervisors had less to say about the work situation. In two comparable divisions the
level of decision-making was lowered so that employees and their immediate supervisors had greater autonomy than before. These programs were designated **hierarchical** and **autonomous**, respectively. The main predictions for this experiment had to do with the effects of these two programs on satisfaction and on productivity. A secondary analysis demonstrated that predictions to employee satisfaction could be improved as personality traits were introduced as conditioning factors, so that the experimentally created environments could be thought of as suited or unsuited to an employee. The profound effects of the experiment on employees' attitudes toward the company raised the question of possible effects on relevant personality variables. Since identical personality measures have been obtained at the beginning and the end of the experimental period, it was possible to do a third analysis to ascertain any experimental effects on personality. Of the 26 personality trends measured, 12 showed significant change in the predicted direction; 6 showed change in a direction opposite to that predicted. In all cases predictions were made on the broad hypothesis that "characteristics that are given opportunities for expression tend to increase in potency; trends that are given only minimal opportunities for expression tend to decrease." (Nancy Morse, & Reiner, 1956), (Tannenbaum, 1957), (Tannenbaum, 1956).

5. Finally the Survey Research Center's series of research projects in industry has provided cumulative evidence for the widespread existence of ambiguity in the industrial situation and for the workers' negative reactions to this ambiguity. The following examples from a study of workers in heavy industry are typical of these results:

...only 19 per cent of these factory workers reported that they were always told the reasons for changes on their own jobs while 41 per cent said that they were seldom or never given the reasons for such changes.
...only 9 per cent of these factory workers reported that they were kept very well informed on what was happening in the company, yet 66 per cent said that they wanted such information and 64 per cent said that other employees also wanted it.

...only 10 per cent of these factory workers knew where they stood with their foremen and 45 per cent said that much of the time they did not know. Yet 76 per cent wanted this information and 67 per cent said that other workers also wanted it. (Kahn, 1950)

6. In an experimental study, measures of a need for cognition—a need for clarity, structure, and meaning in the events and conditions in the person's environment—were constructed and validated. Individual differences in the strength of this need were found to be important predictors to the arousal of anxiety, discomfort and defensive behavior in the person under conditions of ambiguity and uncertainty. Regardless of the strength of the need, the ambiguous condition led to greater dissatisfaction than the more clearly structured condition (Cohen, et al., 1955).

7. Conflicting demands from the social environment and ambiguous evaluation procedures were found to produce dissatisfaction, tensions and worry in a field experiment of middle management committees in a large public utility. In that same study, uncertainty about the trustworthiness of colleagues, perception of a low degree of social awareness in other committee members, and perceptions of unreliability of social supports also were found to be causes of tension, dissatisfaction with social relationships, and lack of personal investment in the goals of the group.

8. In a study of intra-group identification, clarity of the group's social structure and objectives were shown to lead to greater identification with the group and greater sensitivity to the success or failure of the group. Changes in the self concept and self esteem were seen to result from this identification process. This study also suggests that under conditions of a high degree of clarity, perceptual defense mechanisms may
be less effective and physical or psychological withdrawal more frequent in the face of group failure. Ambiguity about the group's structure and its major objectives resulted in low degrees of attraction to the group and a reduction in personal investment in the group task (Wolfe, Scotland, & Zander, in preparation).

9. Role conflict can also lead to dissatisfaction and poor adjustment. In an experimental study of authority structures, subjects for whom there were two persons in direct authority over them tended to reject the group and their position in it, to feel less satisfied with the group's decisions and were less confident and realistic in their interpersonal relations (Zander, Wolfe, & Curtis, 1957).

10. A study of structure and process in urban families also demonstrated the detrimental effects of role conflict. When the family role structure deviated from the traditional (e.g., when the wife was extremely dominant) the wife tended to be poorly adjusted, to receive little emotional and affectional support from her husband, and to be highly dissatisfied with married life. In these same families, the husband tended to withdraw from any active part in meeting the needs (other than financial) of either his wife or the family as a whole. The role diffusion and conflict for the wife which often attends the separation of grown children from the family also tended to create many problems of adjustment for the wife which apparently are fully overcome only when the husband provides emotional support and actively assists the wife in redefining her role (Blood, & Wolfe, 1959), (Wolfe, 1959).

11. In an experimental study of telephone operators, situational structure and ambiguity in the role behavior of the superior were varied. The unstructured ambiguous condition led to anxiety, attempts to leave the field, heightened somatic reactions, feelings of helplessness and
worthlessness, and aggressive feelings and behavior. In each case, those with low self-esteem prior to the test situation showed stronger negative reactions than persons with medium or high self-esteem. It is apparent in this study that both personality and situational factors must be considered in explaining the development of such emotional and behavioral reactions (Cohen, 1959).

12. Ambiguity in group goals or in the paths to those goals have also been found to have detrimental effects on variables relevant to mental health. Group goals and paths were varied in the extent of clarity to subjects in a laboratory experiment. Tension, anxiety and hostility were more frequent reactions to the unclear condition than to that which was clear and well structured. Another aspect to the study, namely, conflicting role demands, tended to produce the same results (Raven, & Rietsema, 1957).

Objectives

The research which we are proposing here is based on the assumption that the quest for identity is in fact a significant problem for many people, that this in combination with other needs leads them to look for certain kinds of satisfactions in the work situation, and that the work situation frequently presents conditions of ambiguity and conflict rather than security and harmony. The prevalence of these conditions and their epidemiology in industry we propose to determine, and to trace their effects on the mental health of employees at all levels. More specifically, the principal objectives of this project are as follows:
(a) to explore the extent of role conflict and role ambiguity in industrial positions
(b) to identify the kinds of situations which are characterized by a high degree of conflict or ambiguity
(c) to determine the association between such conflict or ambiguity and seven broad criteria of mental health
(d) to attempt the formulation of specific sub-hypotheses relating conflict and ambiguity to each of the mental health criteria, and
(e) to explore the extent to which such effects are modified by certain characteristics of the individual and by certain situational factors.

In the following sections we will define the independent variables (role conflict and ambiguity); the dependent variables (criteria of mental health); and the theoretical model which we have developed for this research.

**Organizational Ambiguity and Conflict: The Independent Variables.** The conceptual definition of the two major independent variables is relatively straightforward. By **role ambiguity** we refer to a situation in which the occupant of an office in an organization is uncertain about what he is expected to do. By **role conflict** we refer primarily to a situation in which the occupant of any office in an organization feels that there are two or more things which he is expected to do, but which are somehow incompatible; meeting one expectation fully makes it impossible to meet the other fully.

The major concepts required to characterize role conflict and ambiguity in organizations are as follows:
1. **Office**: a set of prescribed activities with a specified location in a system of social relationships. This location is specified in terms of such information as:
   (a) the relationship of this office to others toward which it has some functional interdependence,
   (b) the contribution to the overall goals of the organization made by this office.

2. **Role**: a force field toward those behaviors and attributes which are expected of the occupant of a given office by certain other relevant persons (usually occupants of other offices in the same system of social relationships. Different persons in an organization may have different expectations of the occupant of a given office, and the occupant of that office may or may not be aware of these expectations. Since we have defined role in terms of expectations, it follows that we must make clear whose expectations are under consideration. This we propose to do by using two additional role-related concepts:
   (a) **sent role**: those social pressures or expectations which are "sent" to an office occupant by a specified person. Thus, there can be many sent roles directed to the occupant of a single office, and they need not be identical or compatible. Of crucial importance for the present purpose is the extent to which these sent pressures are **common** and **shared** (see the discussion in Chapter III).
   (b) **received role**: the psychological forces corresponding to the expectations which the occupant of an office perceives other specified persons to have regarding what he should do.
(or attributes which he should have) as occupant of his office.

3. **Expectation or prescribed activity:** a behavior which one or more relevant persons think the occupant of a given office should perform, or an attribute which they think he should possess. Thus, each expectation has the character of a standard of evaluation, an idea of what an individual in a certain office should do or should be, a standard against which the actual behavior or attributes of that individual can be evaluated. As Gross, Mason and McEachern (1958) have suggested, there are a number of dimensions which can be measured with respect to each role expectation. We believe that some of the most important such dimensions for our research are as follows:

(a) **sign** - positive or negative; that is, does the expectation refer to something which the person should do, or something which he should avoid doing?

(b) **intensity** - the extent to which the expectation leaves room for the exercise of choice by the office occupant; that is, is the expected behavior prescribed, i.e., to be performed without fail; is it encouraged, i.e., to be performed if the occupant deems it feasible; is it permitted, i.e., to be performed at the option of the office occupant?

(c) **source** - who are the relevant other persons who hold these expectations; who are the role senders?

(d) **direction** - does the expected behavior specify a duty or obligation of the office occupant, for example, some service which he should perform for another person; or does it specify
a **right** of the role occupant, for example, some service which he ought to have performed for him?

(e) **sanctions** - what rewards or punishments will others attempt to give to an office occupant as a consequence of his conforming or failing to conform to their expectations? We will be interested in the presence or absence of such sanctions, their nature, and their extent.

The use of these concepts may be made clearer by means of a brief example. Suppose that we are considering a drill press operator in a tractor factory. The job title "drill press operator," together with his section number, denotes his office, although we would want to know also how his office related to others in the factory—for example, on what people he depended for materials and what people depended on him for their own work. We would be interested also in how the specific functions of this drill press job contributed to the overall goal of manufacturing tractors. Suppose that the foreman of this press operator believes that every worker should accomplish not less than 95 per cent of the work which the time study engineers establish as "normal." This becomes an expectation which the foreman entertains with respect to this drill press operator; it is part of the sent role, which the foreman as role sender expects of the press operator as the intended role receiver. The foreman is the source of the expectation in this case; the sign of the expectation is positive--it refers to something which the operator should do rather than something which he should avoid doing. The direction of the expectation specifies an obligation of the press operator, rather than a right which he should exercise. The intensity has not been specified precisely, but it is clearly at the level pf prescription--something the operator should do
without fail—rather than at the level of permission—something the operator is expected to do only at his own option. If the foreman has decided that he will never recommend for promotion a worker who performs at less than the expected level of 95 per cent, the element of sanction is also present; if the press operator fails to meet the foreman's expectation with respect to productivity, the foreman will deprive the operator of promotion.

Let us make the further assumption that this same drill press operator works in a section where the other workers believe that it is unreasonably difficult to attain a productivity level of more than 85 per cent on most jobs, and that it is important that no worker in the section set an example which others would find it difficult or impossible to follow. In other words, these men expect our drill press operator to restrict his production to 85 per cent or less. The role sent to the press operator from these peers includes the expectation that his productivity should not exceed 85 per cent, and the sanction that other members of the work group shall behave in a hostile and unfriendly fashion if he fails to meet this expectation. Provided that this role expectation is also received by the press operator, he is now in a state which we have defined as role conflict. We are interested in determining the frequency of such situations in industry, the circumstances which appear to generate such situations, and the effects on the mental health of the individual who is caught in such a conflict.

There are, of course, many industrial situations which are likely to reveal conflict or ambiguity. We would expect that among such situations would be the following:
(a) the assignment of individuals to new jobs
(b) the transfer of individuals to new work groups
(c) the introduction of a new leader into an already existing group
(d) the presence of two or more persons who have authority over the same group
(e) the introduction of changes in technology or in organizational policy
(f) the experience of being "kicked upstairs," given certain increases in rewards and perquisites and at the same time experiencing certain reduction in responsibilities.
(g) the presence of militant labor-management conflict.

Criteria of Mental Health: The Dependent Variables

The dependent variables in terms of which we shall attempt to study the effects of role conflict and ambiguity include seven broad criteria of mental health, derived primarily from Jahoda's (1958) work. Although these criteria include a wide range of content, there is no assumption that they are exhaustive. While there are a priori reasons for expecting that some of these criteria are more sensitive reflectors of role conflict and ambiguity than others, we intend to employ some measures of each criterion, at least in the initial phase of the research. It is likely that in later phases, we will concentrate on those criterion areas which appear most promising in the light of empirical relationships already obtained.

1. Attitudes and perceptions of self - Key ideas in this criterion area include correctness or accuracy of self-perception, the
accessibility of the self to self-examination, affect toward the self, and the sense of identity of the person.

(a) Correctness of the self concept—the ability of the person to describe correctly certain attributes of the self and of his characteristic ways of interacting with others. Correctness is dependent, of course, on some source of validation; this can come from the consensus of others with whom this individual interacts, from observations by research staff, or from projectives.

(b) Accessibility of the self—the ability of the person to engage in the process of self-examination at will under appropriate circumstances. A person with such ability may be contrasted with the individual who is unable to engage in such introspection or with the individual who engages in such a process involuntarily and without respect to the appropriateness of the circumstances.

(c) Affect toward the self—the extent to which the person can accept the self he perceives, accepting his acts and his attributes without self-hatred, loss of self-esteem, or undue guilt.

(d) Sense of identity—This area is in itself a broad topic for research and one on which some exploratory work will be done as part of this project. In the present context we will be concerned primarily with the ability of the person to maintain stability of perceptions of the self over time and under changing conditions. We will be especially interested in the effects of changes in the accustomed levels of role conflict and ambiguity as factors which might lead to changes in this aspect of self-perception.
2. **Growth, development and self actualization** - These are dynamic concepts and refer to a process rather than to a state of the person. It follows that the major approach to measurement should involve two or more sets of measures taken at different points in time. It then becomes possible to ascertain the direction and amount of change over time. Change should be ascertained in such areas as the following:

(a) Perceptions of the self as described in (1) above.

(b) Differentiation of goals and aspirations, contrasted to restriction and narrowness of aspirations.

(c) Extension of the self and goals for the self in time - This refers to the ability to plan for the future, including some measure of ability to defer immediate gratification in favor of major long-term goals.

(d) Involvement in goals which go beyond immediate self-gratification--work; loyalty to others, to organizations, or to abstract ideals. This involvement includes a concern for groups beyond those in which a person has immediate membership, and an interest in the welfare of mankind as a whole.

3. **Integration** - This is a criterion derived primarily from the psychoanalytic theory. Analysts have thought of integration in terms of achieving balance among ego, superego, and id or, as Kubie (1954) puts it, among unconscious, preconscious and conscious. We would propose to approach integration largely in cognitive terms, asking questions such as the following:
(a) Does the person have some conception satisfactory to him of his place in the world, in the total scheme of things? Does he have, in these terms, a sense of his own identity?

(b) Does the person have some set of major values or valued attributes around which he has organized this core identity?

(c) Is the person able to relate his behavior in various roles to the content of his core identity?

(d) Are the several sub-identities compatible with each other, and with the core identity?

4. Autonomy, self-determination and independence - This criterion has to do with a person's ability to act independently of immediate environmental pressures when he has internal reasons for doing so. Moreover, autonomy implies that the person can choose to act contrary to the wishes of others for reasons of which he is aware, in contrast to so acting for unconscious motives, out of neurotic defenses, or out of obliviousness to environmental pressures. Major opportunities for measurement of this criterion are expected to come in situations of internal-external conflict, for example, when a sent role conflicts with a strongly held personal value.

5. Perception of reality - This criterion involves two major ideas:

(a) Is the person able to perceive reality without distortion by his own needs? For example, is he able to perceive conflicting expectations without attempting either to minimize or exaggerate conflict?

(b) Does the person have empathic abilities--i.e., Can he perceive with accuracy one major aspect of social reality, namely, the thoughts and feelings of others with whom he interacts?
6. **Environmental mastery** - Our major approach to this criterion will be in terms of the familiar trilogy—ability to love, to work and to play. We will attempt to measure these abilities in terms of the person's family relationships, in terms of his job adjustment, and in terms of his friendship and recreational patterns. In each of these roles we will be interested in the person's ability to meet the situational requirements or to alter the situation. We will be interested, in other words, both in adjustment and in other forms of problem-solving.

7. **Symptoms** - We will be interested in physical symptoms which may be psychogenic in origin, and will consider such symptoms to constitute a criterion of mental health. Self-report of symptoms in a nonmedical interview is a limited procedure, of course. However, the success obtained by the use of such items in the Cornell Medical Inventory, the Digby Study, the Midtown Study, and the Survey Research Center's National Survey of Mental Health (Gurin, Veroff, & Feld, in press), is encouraging. We would expect to inquire about such symptoms as: feelings of tension, sleeplessness, nightmares, sweating palms, fear of nervous breakdown, and the like.

**Theoretical Model**

Our basic view of the individual is that he possesses not a single self but a multiplicity of selves. Moreover, we see each of these different selves (or sub-identities) as corresponding to a role which the individual plays in some social system—for example, the factory, the union, the family, etc. It is important, however, to distinguish between the objective reality of these social systems and their psychological meaning for the individual.
sent roles are located in the objective environment, and represent what other persons actually expect of an individual. the received role is located in the individual's psychological environment, and represents his perception of what others expect of him.

For each of a person's major roles in life, there develops a sub-identity or self which is more or less differentiated from other properties of the person. The common properties of the self, which are major determinants of his behavior in all roles, we define as his core identity. Many of the properties of this core identity we think of as developing early in life and as highly resistant to subsequent change.

We find it convenient to represent this conception of person and environment by means of a diagram (Fig. 1). In this diagrammatic representation of person and environment the following regions are relevant for our research:

1. Core Identity - By core identity of the individual we mean those abilities, attributes and perceptions which are central to the self, irrespective of time, place or role. The core identity can be conceived of as consisting of a number of such dimensions. On each of these dimensions there is a point which represents the ideal position for the individual—the position to which he aspires. There is, in addition, a point which represents his actual performance as he perceives it and perhaps a range which defines positions on this dimension which he considers acceptable. Dimensions in the core identity might include, for example, physical strength or weakness, moral goodness or evil, intelligence or dullness, courage or cowardice. Precisely what dimensions are included in the core identity, how many such dimensions there are and what the points of aspiration and of actual performance are on each dimension will vary among different individuals.
2. **Sub-identities of the Individual** - The region adjacent to the center on this diagram we think of as representing the various sub-identities of the individual. The different sub-identities are represented by different sectors within this circle. Like the core identity, the sub-identities of the individual can be conceived of in terms of dimensions. However, the dimensions included in each sub-identity we think of as being role-determined or role-evoked rather than characterizing the individual in all his life's roles. For example, a person may feel that as a father he must be loving, protective and instructive in relation to his children. Accordingly, these three dimensions would be part of that individual's sub-identity as father. The same person might feel that as a factory worker he should be meticulous in his work, industrious in providing a day's labor for his employer, and obedient to the authority of his immediate supervisor. These three dimensions, which have little to do with his sub-identity as a father, would be prominent in his sub-identity as a worker. Moreover, we assume that the individual would have a level of aspiration and a level of perceived performance on each of these dimensions in each sub-identity in much the same way as we have already described for the core identity.

We conceive the sub-identities and the core identity to be in a state of actual or potential interaction. Thus, the contents of any sub-identity may be influenced by properties of any other sub-identity or by properties of the core identity.
3. **Psychological Environment** - In this region we attempt to represent reality as it is perceived by the individual. This area Lewin (1951) called the person's psychological environment, including his perceptions of things, people and behaviors which affect him in any way. He tends to organize his psychological environment around the offices or positions which he occupies. Thus, if the individual works as a tool maker in a factory, the social and physical attributes of this position would be represented by one sector in his psychological environment. If he is the father of a family, that position might be represented by another sector. If he is a church member or the president of a voluntary organization or a shop steward in his labor union, each of these may be represented by additional sectors. We assume that there is a correspondence between each of the individual's sub-identities and each position of any importance which he occupies over a period of time. The basis of this correspondence is that the office and the individual's role behavior in that office is conceived of as a major determinant (via the psychological environment) of the corresponding sub-identity.

There is, of course, continuing interaction among the core identity, the sub-identities and the psychological environment.
Thus, while the behavior of a worker on the job can be predicted in part on the basis of knowledge of his core identity and his sub-identity as a worker, it is also true that his sub-identity as a worker has been created to a considerable extent by his experience in all the jobs which he has held, including his present one.

4. **Objective Reality H.** By objective reality H, or the foreign hull of the life space, we mean to include all those aspects of the real world which have any influence on the individual, conscious or unconscious. Again, we think it in the interests of theoretical consistency and research productivity to conceive of the objective reality of an individual in terms of the characteristics and attributes of the various positions which he holds and of the forces which others bring to bear upon him in these positions. Specifically, we would expect the positions in the individual's objective environment to correspond to those in his psychological environment, for example, factory worker, shop steward, father, etc. To what extent the content associated with each of these positions is the same in the objective and psychological environments will vary from one individual to another, depending upon attributes of the environment and of the individual. In fact, the degree of congruence between actual and psychological environment is one criterion of mental health; i.e., orientation to reality.

It may be useful to indicate by example the way in which we would expect to make use of this theoretical approach. Role conflict in terms of this model usually originates in the objective environment. It may consist of a conflict within a
single sector or office which results from two or more incompatible expectations. To continue an earlier example, suppose that a worker is told by his foreman that productivity of less than 90 per cent is intolerable to the company and is told by his work group that productivity above the level of 85 per cent will be interpreted as an act of hostility against the group. This conflict exists in the objective environment of the worker and consists in an incompatibility; thus the two sent roles generate conflicting forces in his psychological environment. If the person cannot resolve this conflict in realistic behavior, then he may protect himself by denying or distorting one of the sent roles. Were he to do this an incongruity would exist between the objective environment and the psychological environment, and the worker would be revealing difficulties in perceiving reality—which we have defined as a criterion of mental health.

Another worker might experience such a conflict as a problem in sub-identities. As a friend he would feel obligated to restrict his production to the group norm; as a worker he would feel obligated to produce at his own maximum. The resultant confusion and anxiety over two sub-identities, that of friend and that of worker, we would consider as manifesting a problem of integration—again one of the criteria of mental health which we are using.

A long-standing conflict between the role as sent by management and the role as sent by the work group might also lead a worker to serious confusion regarding his own values and goals, and reduce his ability to cope with his environment.
It is in terms of this model of the person and his environment, utilizing the organizational concepts and the mental health criteria described in the preceding section, that we propose to test our major hypotheses that role conflict and role ambiguity are associated with mental health.

Exploratory uses of the model. The theoretical model sketched out above will be used primarily to generate and test hypotheses relating certain forms of role conflict and ambiguity in industrial organizations to the mental health of employees. Such hypotheses must include the implicit or explicit condition "other things being equal," where among the "other things" are included many of the individual differences in personality which condition the relationship between an environmental conflict or ambiguity and the impact of that situation on the mental health of the people exposed to it. The importance of individual differences in predicting and understanding the responses to such situations is reflected in a complementary aim in our research and in our theory-building. Our major aim lies in determining the impact of certain aspects of the industrial environment on mental health. This aim will be realized in terms of general statements which hold for large numbers of people who are exposed to a given situation.

The complementary aim is to understand the differences in individual responses to the same stress in the industrial environment. Ultimately, these differences should be expressed in terms of conditioning variables, so that a statement relating a given form and amount of role conflict to a criterion of mental health will include a number of individual and situational attributes as conditioning factors. We believe that the discovery and specification of these conditioning factors can best be achieved by
study of a limited number of individual cases, in all their totality, complexity, and uniqueness. In this way, we would hope to reveal a number of factors which reside both in the individual and in the social and physical environment which may exacerbate or reduce the reaction to role conflict or ambiguity. For example, with insufficient structure in the environment, the person's behavior and thought processes are determined to a considerable extent by internal needs. In one person these underlying needs and predispositions might lead to hostility and aggression; another person might respond to the same situation by withdrawing and becoming anxious. An adequate understanding of either person's reaction in the ambiguous environment requires additional information of his cognitive and motivational characteristics. Perhaps one of the major reasons the usually dormant tendencies are expressed in behavior under conditions of ambiguity is that many usual methods of coping with the environment are unreliable or unavailable. The person must turn to the less adaptive defense mechanisms.

Just as we need to know more about the internal dynamics of the person to understand the individual case, we need to have a more comprehensive view of his environment, both in its objective characteristics and in its idiosyncratic meaning for him. It may well be that external pressures and demands, other than those in his work role, seem more intense and threatening when the work role is ambiguous than would otherwise be the case. For example, if the responsibilities of other roles are great or if other interpersonal relationships are threatening to the self, they may become unmanageable if the person must devote most of his psychic energy and attention to the major work role. While ambiguities and conflict within a role are seen as sources of trouble for the person in their own right, they may also intensify other sources of stress or discord.
Looking beyond the selected variables of the conflict-ambiguity model may also lead to sources of support and strength for the person in handling stress. The person may have internalized methods of coping or learned institutionalized solutions which enable him to handle the ambiguity or role conflict without serious strain. We should also be interested in cultural images or models for identification which may hold off serious identity conflicts. To the extent that the person's various sub-identities are well integrated, he may find support in other identities (and thus in other social roles). For these reasons, it is important in the individual case to look for factors which may alleviate as well as those which may intensify mental or emotional troubles generated in the work situation.

We therefore propose that within the scope of the larger study of the mental health effects of role ambiguity and conflict, a more intensive exploration of selected individual cases be conducted. This will primarily involve a comprehensive investigation of the person's self-identity, with particular attention to the occupational sub-identity. A content-free method of investigating cognitive structure developed by Zajonc (1954) can readily be adopted to the phenomenology of the self-identity (core identity and sub-identities). This method allows the subject to call forth the particular attributes or characteristics which are most central to this self, and provides information about the organization of the self within the person's general cognitive structure. While psychiatric case studies of disturbed persons often yield this kind of material, such intensive and systematic studies of self-identity within the context of occupational roles are as yet unavailable for normal persons.

In addition to the analysis of the internal organization of the self, three related areas are to be studied in this phase of the research:
1. **Social origins of self-identities.** The cognitive content and structure of various self concepts grow out of experiences in many kinds of social groups and organizations. Many social and psychological processes are considered to have potential effects on the development of a sub-identity. These include identification, the pressures of public identities, taking the role of the other, and self-observations under conditions of behavior as dictated by the various roles one occupies. Special attention will be paid in this study to these processes and to the conditions which make them possible.

2. **Self-identity and motive structure.** While the social roles the person engages in determine to a large extent the identities the person develops, the latter are also affected by, and in turn serve, various basic motives of the person. As was indicated in the model presented above, the various sub-identities are connected to the core identity (which primarily consists of motives and standards of behavior). Measures of such motives and standards will be taken and the nature of their connections to the occupational sub-identity will be investigated. Such measures will also be related to the mental health criterion variables described in an earlier section of this proposal.

3. **Identity conflicts and defense.** The self-identity is often a factor in various kinds of interpersonal and personality conflicts. Every person develops a variety of techniques for coping with such conflicts. Some of these involve manipulations of the environment or of the self in relation to the environment. Others involve
perceptual distortions or cognitive restructuring. Some coping procedures, e.g., the neurotic defense mechanisms of Anna Freud, are much less adaptive than others. An understanding of the dynamics of the individual case is incomplete without consideration of the ways the person characteristically attempts to cope with conflict. Assessments of defense preferences, with particular attention to manipulations of the environment, will be included.

In each of these three cases, we shall be concerned with the relations between these additional factors and the various measures of mental health. The objectives of this exploratory aspect of our research are:

...Further development of theoretical tools for conceptualizing self-identity and person-role interaction.
...The generation of hypotheses for systematic test in the areas of social origins of self, the importance of core personality, the determinants of and defenses against identity conflict.
...The construction of measurement techniques and instruments with respect to the dimensions of identity and coping procedures.
...The first extensions of the model for the treatment of the special individual case.

Once these objectives are obtained it is quite likely that we will be in a position to conduct more definitive studies on the effects of role ambiguity and role conflict on mental health. Furthermore, we shall be ready to study more adequately the effects of other environmental variables on adjustment.
Organizational Demands, Self Evaluation and Mental Health

The amount of value a person places upon relevant aspects of himself (his self esteem) is often taken as an indicator of mental health. He who is proud of his accomplishments, is confident he can handle the future, and is mostly satisfied with his personal capacities is said to be psychologically healthy.

Research on levels of aspiration and on causes of self esteem has shown quite well that parts of a person's environment can affect his degree of self esteem (Lewin, Dembo, Festinger, & Sears, 1944; Stotland, Thorley, Thomas, Cohen, & Zander, 1957; Stotland & Zander, 1958). The results from such research suggest two questions: (a) what conditions in a person's social psychological environment determine his self esteem? (b) why does the social psychological environment have effects upon self esteem?

In recent research on psychiatric disorders, it has been noted that low self esteem is found in persons with neuroses more often than in persons without such complaints. Many writers are inclined to believe that low self esteem is a cause for a neurosis rather than being one of the symptoms of illness. A third question then in examining the relations among the demands of an organization, self evaluation, and mental health is: (c) to what degree is low self esteem a cause of neurotic symptom?

If it can be shown that specific parts of the social psychological environment, under specified conditions, have predictable effects upon self evaluation and if it can be shown that the degree of self evaluation determines the frequency of neurotic symptoms, it follows that we may
examine the effects that parts of the social environment have upon the development of psychological illnesses. A fourth question is (d) what conditions in a person's social psychological environment predispose him, by way of low self esteem, to the development of neurotic disorders?

In this section we offer a set of definitions, assumptions, and hypotheses concerned with the effect of social psychological conditions within a formal organization upon the development of self esteem and subsequently upon the development of other indicators of mental health. These ideas provide the framework for a theory, or for several sub-theories for studying such effects.

We limit our interest to the examination of phenomena usually found within industrial concerns. This limitation makes certain phenomena salient which are not always present in less formal organizations. The most important among these are briefly mentioned now since they provide an intuitive awareness of some of the social properties, interpersonal relations, and individual motives we must consider in the following pages.

Because we shall be concerned with a formal organization, it is evident that our subjects are members of a group, or of several groups within a company. It may be taken for granted that these members have a specific set of functions to perform and that others in the organization expect them to perform these functions well. These expectations and corresponding sanctions constitute role prescriptions. We must recognize, in addition, that members have different abilities and that their abilities may be more or less suited to an effective performance of the functions assigned to them in their jobs.
We assume that differences in authority, responsibility, and power exist for separate offices in the organization's social structure and for the persons who occupy these offices. These differences in power to influence one another can have profound effects upon the nature of interpersonal relations and on the evaluations persons make of themselves.

The definitions and assumptions necessary for explaining a person's aspirations, the effects that others have upon these aspirations, the effects of others on a person's self evaluation, and the origins of emotional tension in a person are now presented each in its turn. Hypotheses which may be derived from these definitions and assumptions are then discussed.

**Overview of Theoretical Framework**

The most important aspects of the following discussion can be stated briefly. A person's self esteem depends upon how he performs in a given role, compared to his level of aspiration for this performance in that role. Other persons (O's) can influence the level at which P sets his aspiration: by affecting P's perception of the probability that he can reach given levels of performance, by influencing P to attach more or less valence to the achievement of different levels of performance, by setting a goal for P and pressing him to work toward it, or by any combination of these.

The O's influences are accepted by P to the extent that the O's have power to determine P's beliefs or goals relevant to achievement. Thus, P may set a goal which is considerably above (or below) what he would set for himself in private; if he is in a situation where the O's have power to influence him.
Where O's will not change their demands on P, and yet P cannot reach his level of aspiration, P has a fixed discrepancy between his performance and his goal level. This fixed discrepancy can be a source of emotional tension, provocative of strain and defensive reactions in P.

**P's Level of Aspiration**

In order to arrive at a self evaluation, P must have some conception of his present performance and some awareness of how his performance compares to the way he expects himself to function, i.e., to his level of aspiration. P's consideration of how well he is performing and how well he could do is a process related to his efforts to formulate a self-identity (see Chapter III).

In an identity the characteristics are assembled in sets known as dimensions. Examples of dimensions can be found in the answers a person would give if he were asked to describe the characteristics he possesses. His responses might be categorized on dimensions such as age, sex, physical type, personality, abilities, and so on. In this discussion we limit ourselves to performances and to abilities within the occupational sub-identity. We are primarily concerned with those dimensions on which P can determine his competence with a high degree of accuracy because he has objective evidence concerning his actual performances and he can judge the amount of ability represented by a given level of performance. Dimensions for both ability and performance, it should be noted, are scales. There is an end of these dimensions indicative of excellence and an opposite end indicative of ineptness.
We introduce certain terms relevant to the dynamics involved in setting a level of aspiration. A full explanation of these terms is not presented since it is available elsewhere (Lewin, et al., 1944).

Consider the diagram in Figure VII:1. The vertical scale represents possible levels of aspiration for P in respect to performance on a given task. At one extreme the levels are too difficult and at the other end, too easy for him. The arrows designate resultant "own" forces on P toward (a) setting his level of aspiration at a higher level, and (b) setting his level of aspiration at a lower level.

The strength of the force upward at each level is equal to the product of the valence for P of success in reaching that level and the probability he perceives of being able to reach that level. The force downward is the product of the negative valence of failing to reach that level and the perceived probability of failing to reach that level. These two forces on P cause him to establish his level of aspiration at the point with the greatest resultant valence. The resultant valence is a function of the valence of reaching a given level times the perceived probability of being able to reach that level minus the negative valence of failing to reach that level times the perceived probability of failing to reach that level. The resultant own forces on P are stronger at levels distant from the level of aspiration than at levels close to the level of aspiration.

As shown in Figure VII:1, some levels are too difficult for P and others too easy for him. The amount of difficulty is a property of the task for which P is setting his level of aspiration. The less the ability or skill of P at a given level of performance, the greater its difficulty.
Possible Levels of Aspiration for Performance on Task C, and the Relations among Other Relevant Concepts

Too difficult

Prescriptions for P by O's

P's level of aspiration

Discrepancy (negative)

P's present level of performance

Too easy

a. Own forces toward higher aspiration
b. Own forces toward lower aspiration
c. Performance scale
A difficult objective generates higher valence for achieving that level and a lower perceived probability of reaching that level. An easy objective generates negative valence for failing to reach it as well as a high perceived probability of reaching it. If P's actual performance falls below his level of aspiration he will experience subjective feelings of failure, but if his performance reaches or exceeds his level of aspiration he will experience feelings of success.

The effects of different degrees of difficulty upon the probability and valence of succeeding or failing are summarized in the following tabulation.

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Perceived Prob. Succ.</th>
<th>Perceived Prob. Failure</th>
<th>Valence of Success</th>
<th>Negative Valence of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

It is evident when one examines this tabulation that the level which has maximum resultant valence will depend on more precise quantitative gradients for the two subjective probabilities and the two component valences (Atkinson, 1957; Lewin, et al., 1944).

We must now look for determinants, other than difficulty of a task, which also determine P's level of aspiration. These other determinants may be either properties of P himself or of the situation created by other relevant persons.
Properties of P

The own force determinants of P's level of aspiration are such that he is unlikely to set an aspiration which is more than he expects to achieve or is willing to try to achieve. In the absence of social pressures upon P to establish a higher or lower level of aspiration, P typically sets his sights somewhat above his present position but not too far above it. If he finds that he has set his aspiration at a level he cannot reach, he lowers it. If it is too easy, he raises his aspiration. By means of mechanisms such as these, persons aspire for improvement without setting themselves impossible goals, unless pressures from others cause him to set goals they might not set if they were free of these social pressures.

A number of personal qualities determine the resultant valence P assigns to different positions on a performance dimension. Some of these conditions affect the attraction of succeeding or failing, others determine P's perception of the probability of succeeding or failing. Certain personal variables which have received attention as determinants of levels of aspiration should be recorded here since they may be useful parts of a more detailed theory or in a specific research problem. Examples are: need for achievement (Atkinson, 1957), hope for success (Atkinson, 1957; Lewin et al., 1944), fear of failure (Atkinson, 1957; Lewin et al., 1944), centrality of dimensions (Miller, 1957), self confidence (Cohen, 1959; Cohen, 1954b), nature of preferred defenses (Cohen, 1954a), personal security (Cohen, 1954b), degree of skill (Hertzman & Festinger, 1940), and so on. Lewin et al. (1944) and Atkinson (1957) are good references for other examples of personal characteristics which may affect the level at which a person sets his aspirations. Our major concern, however, is not
with the effects of personal characteristics on the level of aspiration, but rather with the effects O's have on the level.

The Effects of O's Prescriptions Upon P's Level of Aspiration

When a person is a member of an organization he has certain functions to perform and he becomes aware that others have expectations as to how well he should perform these functions. We are concerned with those instances in which the expectations by others are clearly expressed to P so that P understands what is wanted of him by others. These role prescriptions may be made known to P through such devices as piece rates, merit appraisals, job descriptions, indexes of production or quality, and so on. We consider now how the prescriptions of O's on P help determine P's level of aspiration.

The prescriptions by O's for P are positions on performance dimensions (in P's objective environment) which O's believe P should occupy. The levels at which these preferred objectives are placed by O's, and the justification O's employ for placing the preferred objectives at these levels, are determined in large part by the technical and economic demands on the organization as a whole. For the moment, let us assume that all O's prefer the same objectives for P on dimensions included in the functions assigned to P.

Strength of O's Social Pressures on P

When O's establish a prescription of preferred objective for P, they exert pressures on P toward that level. Several conditions are of interest here since they affect the nature of these pressures.

The social relevance of P's job is the importance of the task to a group of O's. The relevance is determined by the necessity that a given
office or role be performed within the group so that the O's might accomplish the goals of the organization, in order to maintain the group of O's as a group. The social pressures O's place upon P's are stronger the greater the social relevance of the task involved.

Assumption 1. The more that P's performance of his role or office determines need satisfaction for the O's, the more will O's exert social pressures on P toward the objectives they prefer for P.

The distance between P's level of aspiration and the level of these prescriptions determines the strength of the social pressures O's exert on P. This is described in the next assumption.

Assumption 2. The strength of the social pressures on P to occupy the prescribed level increases as the discrepancy between P's level of aspiration and the prescribed level increases.

It is probable that the strength of the pressures exerted by O's upon P will decrease if O's feel that P should not occupy the role he has (Jackson & Saltzstein, 1958) or if O's perceive that P cannot or will not change his goal to the prescribed one. Such a decrease in O's social pressure is in accord with propositions reported by Schachter (1951) and Schachter et al. (1954). Failure to conform to these social pressures by O's on P may result in O's withdrawal from P, their exclusion of P from the organization, or their derogatory attitudes toward P. Rejection of P by the O's can create great uneasiness for P (Jackson & Saltzstein, 1958).

O's may exert influences upon P, which help to determine P's level of aspiration in the following ways (a) by the amount of difficulty in the level they prescribe for P, (b) by determining the valence of success or the negative valence of failure for various levels, (c) by affecting
the probability of success or failure at various levels, or (d) by setting
a quota for P and pressing him to reach it without influencing any of the
above.

A. Difficulty of O's prescribed objective. P may perceive the
objectives O's prefer for him as too difficult, too easy, or just right.
The degree of difficulty associated with a given objective helps deter­
mine for P the perceived probability of succeeding or of failing and the
valence of succeeding or failing to reach that level. But, as stated
earlier, degree of difficulty often must be modified by influences from
other sources, such as those discussed in the following paragraphs.

B. O's affect the valence of their prescribed objective for P. O's
can increase the attractiveness of a given level by the use of social
pressures on P. These pressures may be exerted by O's in the form of
praise, encouragement, the expression of values, showing P the importance
of a given achievement for the organization, and the like. Non-coercive
forms of influence by O's are likely to be more effective in increasing
the attractiveness of a given level, we believe, since they are not likely
to stimulate strong resistance in P (French & Raven, 1959). Among non­
coercive forms of influence we feel most confident that referent power
(i.e. P wants to be like O's) will increase the attractiveness of O's
preferred objective for P. It is an empirical question whether non­
coercive influences based upon rewards, expertness, or legitimacy will
have effects similar to referent power. (There is some evidence that
the granting of monetary rewards by O's creates a reaction in P which
cancels the effect of achievement motives relevant to setting a level of
aspiration.)
Assumption 3. P will assign greater positive valence to the objective preferred for him by O's to the extent that O's have non-coercive control over P.

The ability of O's to non-coercively influence the behavior of P, and therefore to cause P to place the greatest valence on O's preferred objective, is defined as the maximum of the difference between non-coercive forces on P from O's toward the objective preferred for P, minus any forces on P to resist or oppose these forces from the O's.

P's resistance to social pressure exerted on him by an act of O is defined as opposing forces on P which are set up by this same act of O. A number of conditions are determinants of the amount of resistance P may offer to social pressures upon him from the O's. These conditions may be used in expanding this theory where problems make them relevant (French & Raven, 1959).

The resistance offered by P to O's social pressures is likely to be less, and thus O's control over P is likely to be greater, the more that:

a. O's prescribed position is an easy one,

b. P would like to be similar to the O's,

c. P perceives that O is an expert; information offered him by O is credible,

d. P places value on the goals of the group in which he is a member along with the O's,

e. P perceives that the performance of concern to the O's is relevant to the attainment of the group's goals,

f. P perceives that he will be rewarded if he achieves the prescribed position,

g. P perceives that O has a legitimate right to influence his performance.
The more that O's have non-coercive control over P, it seems clear, the more will P assign positive valence to the objectives preferred for him by the O's. The resultant valence of the prescribed level, therefore, is likely to be high for P (all other matters equal) and P will set his level of aspiration close to the level preferred for him by the O's.

O's can, through various means, determine the amount of negative valence P assigns to a failure to achieve the objective O's prefer for him. They may remind P that other groups similar to P can do better than he does on this task, may make the goal line too easy for P, may indicate that negative consequences will occur for P should he fail to reach the position they prefer for him, and so on. Where the O's exert coercive power on P to attain the position they prefer for him, they generate in P a fear of failure over and above any fear of punishment as well as a strong likelihood that P will resist and oppose the forces put on him by O's.

Assumption 4. P will assign a negative valence to the objective preferred for him by O's to the extent that P perceives O's will exercise coercive control over P if he were to fail to perform at the prescribed level.

The assignment by P of negative valence to the objectives preferred for him by O's will decrease the resultant valence of the level preferred by the O's, since the resultant valence of any level is determined by the probability of succeeding times the attractiveness of succeeding minus the probability of failing times the negative attraction of failing. P will choose, when O's exercise coercive influences, a level of aspiration somewhat lower than the level O's prefer. Thus, P will not expect as much of himself as O's prefer of him.
We must keep in mind, however, that P's level of aspiration is usually a private matter. Where P sets his own private aspirations lower than what O's ask of him, P is not likely to let the O's know about it -- since his intention to expect less of himself than do O's might lead O's to punish him.

In a public assertion, therefore, P will state that his level of aspiration is similar to what O's demand of him, but in private he would be likely to hold a lower level of aspiration for himself. It is probable, where O's exercise coercive power, that P would evaluate a given performance differently in public than in private.

There is evidence that persons with strong fear of failure are likely to be erratic in setting their levels of aspiration (Atkinson, 1957; Festinger, 1942). In private, in the absence of coercive O's, they may set their level very low so that they cannot fail, or they may choose a level that is so difficult that failure would cause no embarrassment for them. In public, however, where coercive O's set high levels for P and could know about P's aspirations (or performances), P's are not likely to choose an easier level, but are more likely to select a difficult one.

Finally, we must not overlook the possibility that some P's may, by virtue of their temperaments, their needs, or other qualities of O's, accept and internalize the demands of O's even though the latter are coercive. In such instances we expect P's to set their own levels of aspiration very close to the levels expected by the O's.

A. O's affect P's perception of probability of succeeding or failing. The most direct determinant upon the probability P assigns to the chances of reaching the objective preferred for him by the O's is
the difficulty of the objective. We assume that P will assign probability of success in inverse proportion to the difficulty of the level set for him. According to Atkinson’s theory a P usually derives the highest resultant valence for that objective with highest uncertainty, i.e., at the 50-50 level of probability (Atkinson, 1957).

In some cases O's may affect the probabilities that P's assign to a level by encouraging or discouraging P's by providing poor tools, by giving unclear instructions, or by serving as reference groups for P (Festinger, 1942). It is probable that O's are more effective in determining the valence P assigns to a given level than in determining the probability he assigns to that level.

B. O's press P toward a prescribed objective. In cases where we cannot specify the bases of the power used by O's, we may consider O's control over P without determining whether control determines the valence or the probability of the preferred objective. In such instances we shall assume that the extent to which P sets his level of aspiration at the level preferred for him by O's is a function of the control O's have over P, discussed above.

The important point, thus far, is that O's can, to the extent that they have control over P, determine at what level he sets his aspirations and can require him to keep them at that level. Where O's have little power over P, O's may nevertheless make efforts to influence P's level of aspiration, but these influences by the O's will be largely ignored. Instead, P will set his level of aspiration on the basis of his own view of the valence and the probability of the various possible objectives.
Self Evaluation and Self Esteem

Not all success or failure on a task will influence a person's self esteem. A person may become task-involved with a trivial puzzle and experience feelings of failure when his performance falls below his level of aspiration; yet he does not suffer a loss of self esteem because his self identity does not include a dimension of puzzle-doing-ability. This same person may become ego-involved in a similar puzzle presented as an intelligence test; now his low performance will lead to both an experience of failure and a feeling of shame (loss of self esteem) because intelligence is one dimension of his self identity.

Frequently, though not always, a person's occupational sub-identity will include required abilities which are central dimensions in his self esteem. Corresponding to the external performance scale of Figure VII:1 there is an internal ability scale as a dimension on which $P$ has a present level of ability and an ideal level of ability which he would like to have. The present level of ability will correspond more or less to the present level of performance depending on such external factors as barriers to performance and such internal factors as whether $P$ perceives himself to be "doing his best" in his present performance.

If $P$'s current performance on an ego-involving job is poorer than his level of aspiration and he is not able to improve upon his performance or quickly to readjust the level of his aspiration, he is faced with a possible devaluation of self. If $P$'s present position exceeds his level of aspiration, he is proud that he is doing better than he had expected of himself.
Self evaluation by P on a given dimension of self identity is defined as the size of the discrepancy between P's present ability and his ideal level of ability. The greater a negative discrepancy, the lower the self evaluation and the greater a positive discrepancy the higher the self evaluation.

We have said that P's acceptance of the level of aspiration set for him by O's is a function of the control O's exercise over P. A given amount of discrepancy between P's present performance and the prescribed level, therefore, should lead to more influence on self evaluations by P to the extent that O's have control over P.

Assumption 5. The greater the control of O's over P in prescribing an objective for P, the more will a given discrepancy between P's present performance and O's preferred level affect P's evaluation of himself, in the direction of making the evaluation more extreme than the discrepancy alone would lead us to expect.

The degree of self evaluation is coordinated to feelings of pride and shame, but some persons may have stronger reactions than others as a result of a given discrepancy.

Assumption 6. The greater the control of O's over P's level of aspiration, the more will a given discrepancy between P's present performance and O's prescribed level affect P's feelings of pride or shame in the direction of making the feelings more extreme than they would be without O's influence.

Self esteem of P is defined as the amount of self evaluation P attributes to himself on a number of dimensions; in measuring self esteem more central dimensions are weighted more heavily than peripheral dimensions. Self esteem, compared to self evaluation, describes more aspects of the person,
over a larger period of time, and is probably more stable (Miller, 1957).

(Other determinants of self esteem should be mentioned since they can become relevant in more detailed theorizing. Examples are: (a) the availability of persons whose performances are similar or dissimilar to one's own (Festinger, 1942), the result of identification with models who are able or inept persons (Stotland, Zander, Matsoulas, Burnstein, & Wolfe, in preparation), the awareness that a given performance is or is not a true indicator of capacity (Lewin et al., 1944), the evaluation others attribute to certain defensive behaviors (Cohen, 1954), direct evaluative comments about performances, made by others.)

There are times and situations when P is not able to improve his performance in order to achieve his level of aspiration. It is obvious that abilities, in contrast to opinions or beliefs, are not greatly changeable. Low competence of a person can serve as a restraint to improvement of performance. Situational restraints may also exist which make it impossible for P to improve in the use of a given ability.

**Personal restraints** are barriers, not created by O's which are present in P during his efforts to change his position toward his level of aspiration, which make it difficult or even impossible for him to do so. Examples are: lack of skill, lack of energy, inadequate training, personal insecurity, and so on.

**Situational restraints** are requirements or other properties of P's environment pertinent to a specific sub-identity which prevent P from changing his performance toward his level of aspiration. Examples of situational restraints are: unclear paths to reach the level of aspiration, inadequate tools, insufficient time, or social pressures against changing his position. O's may generate situational restraints for P.
Where a P has a very strong level of aspiration on a performance scale related to an ability in his self identity, which implies that he desires very much to occupy it and also implies that he does not want to (or cannot) accept a different level for his aspiration, and where he cannot improve his performance because of situational or personal restraints, P develops a **negative discrepancy** between his present position and his level of aspiration which is likely to be stable. This is called a **fixed negative discrepancy**.

The amount of a fixed negative discrepancy is the size of the difference between the level of P's present performance and his level of aspiration; which P is unable to decrease. The greater the fixed negative discrepancy, it follows, the lower a person's self evaluation.

It seems reasonable that a fixed negative discrepancy due primarily to personal restraints may have a different meaning for P than one due primarily to situational restraints. It is probable that a P's self esteem is less affected by a discrepancy due to situational restraints than by a discrepancy due to personal restraints. Support for this conjecture can be seen where persons blame a failure upon the situation rather than on their own inadequacies. A tendency to blame a source external to themselves suggests that persons are not as distressed by a fixed negative discrepancy due to situational restraints because they see that such a discrepancy need not be taken as a sign of personal inadequacy. But a discrepancy due to personal restraints implies low ability and loss of self esteem. It is, however, an empirical question as to whether personal and situational restraints are differentially effective in determining the degree of self evaluation and self esteem.
Type of O's Power and P's Self Evaluation

It is instructive to consider the consequences for P when O's power stems from the ability to punish and when it stems from the ability to reward. Coercive power, which originates in O's assertions that they will punish P if he fails to achieve the position they prefer for him, causes P strongly to fear failure and his conformity is due to forced compliance. Reward power, which originates in O's assertions that they will reward P if he achieves the position they prefer for him, causes P to hope for success which he takes as a personal requirement on himself.

A fixed negative discrepancy established under the control of O's who use coercive power should lead to a low self evaluation dominated by the fear of failure, the fear of what O's think of P or what others might do to P (shame). A fixed negative discrepancy established under the control of O's who use reward power should lead to an even lower self evaluation dominated by regrets over one's own inadequacy and by self blame (shame and guilt).

P's Defenses and Emotional Tension

By definition being in a fixed negative discrepancy means that P is not able to reduce its size. His failure makes him less able to resist or oppose the O's for a number of reasons: the O's see him as a less valuable person for the group, they see him as less expert, or they reject him for his deviancy. At the same time P may become less secure, have a lower self esteem, and perceive higher probability of failure so that there are strong forces on him to withdraw or to give up and thus the discrepancy is widened or remains the same. A failure then leads to the likelihood of further failure.
In contrast, a success, that is, a perception by P that he is occupying a position equal to or greater than he and others expected of him, gives him greater ability to resist and oppose O's, or even to determine what position O's will prefer for him. Thus, a success may well lead to further success.

A situation in which P develops a fixed negative discrepancy, we can assume, is negatively valent for P. From this assumption it follows that P may want to leave the group in which he develops a fixed negative discrepancy, he may develop a "don't care" attitude in which he withdraws from the processes involved in setting a level of aspiration or a self evaluation, he may devalue the importance of identity dimensions on which he has a fixed discrepancy, he may set a private level of aspiration different from that imposed on him by the O's, or he may attempt to weaken the power of O or to secure new reference groups to bolster his self esteem.

Whether any of these forms of defense occur, and if so which ones, depends upon the degree that O's block P from employing any of these means. Further theorizing concerning the determinants of defensive actions would be rewarding.

When O's have strong control over P, we can anticipate that P will strive toward reducing the size of the discrepancy. This striving will generate emotional tension. The degree of emotional tension is a function of the magnitude of the weaker of two opposing forces acting upon P and probably the equality of these forces (Zipf, 1958). The opposing forces are those on P toward the level of aspiration and those on P restraining him from reaching that level. Emotional tension will be
greater the more P's performance is close to but deviant from his level of aspiration since forces, both away from and toward the level of aspiration, are strongest near the level of aspiration. Emotional tension may be manifested in a number of ways such as discomfort, restlessness, physiological indicators of anxiety and so on.

The presence of emotional tension is significant to mental health in itself and is easily susceptible to measurement. Emotional tension can be a precursor of neurotic disorders, unless it is reacted to in a "healthy" manner. The development of emotional tension, by way of the level of aspiration phenomena, allows us to theorize about the sources of neurotic difficulties in the social psychological environment.

Hypotheses Derived from the Foregoing*

Self Evaluation, Self Esteem, Level of Aspiration

1. P's self evaluation, from failing to do as well as O's expect him to do, is lower when O's exercise non-coercive power than when they exercise coercive power.

2. P's self evaluation, from failing to do as well as O's expect him to do, is lower on a socially relevant dimension than on a dimension with little social relevance (Stotland, et al., 1957).

3. P's self evaluation from failing to do as well as O's expect him to do, is lower the more P attributes expertness to O (Stotland, 1958).

4. P's evaluation of himself from a fixed negative discrepancy is not as low if O's do not observe his failure than if O's do observe the failure (Stotland, 1958).

*A reference indicates that this hypothesis has received support in the publication cited.
5. Given a negative discrepancy between P's present performance and the objective preferred for him by O's, the less the power of O in respect to P, the higher P's evaluation of himself.

6. A given negative discrepancy between P's present performance and the objective preferred for him by the O's will generate lower self evaluation by P to the extent that O is attractive to P (Rasmussen & Zander, 1954).

7. A given negative discrepancy between P's present performance and the prescribed level will generate lower self evaluation by P to the extent that O is seen as right and just in his pressures on P (Zander, Thomas, & Natsoulas, 1957).

8. Among persons whose present performances are equally discrepant from their levels of aspiration, those with initially higher self esteem will have higher self evaluations than those with initially low self esteem (Stotland et al., 1957).

9. The more attractive it is for P to succeed on a given task, the greater will be his feelings of failure from a given negative discrepancy.

10. Low evaluation of one's performance on scale A will spread to other scales the more that the other scales employ the same abilities as those used in performance on A (Jackson & Saltzstein, 1958; Stotland & Zander, 1957).

11. A similar level of performance by a number of P's will be evaluated better by P's who rate the task as difficult than by P's who rate the task as easy.
12. A similar level of performance by a number of P's will cause less feelings of failure by P's who rate the task as difficult than by P's who rate the task as easy.

13. The more that P's performance of his role or office determines need satisfaction for the O's, the more is P's level of aspiration likely to be similar to the objective preferred for him by the O's.

14. The more that P's performance of his role or office determines need satisfaction for the O's, the more are O's likely to set a preferred objective which demands high ability from P.

15. P's with low self evaluation or low self esteem are likely to feel stronger social pressures on them than persons with high self evaluation or high self esteem.

16. The stronger the non-coercive control of O over P the greater the valence for P of O's preferred objective.

17. The stronger P's motive for having O's use non-coercive power, the greater is O's non-coercive control over P's aspirations.

18. The greater O's coercive control over P, the more will P fear failure to do as well as O's expect him to do.

19. The greater O's coercive control over P, the more will P set his private level of aspiration lower than his public level of aspiration.

20. A P will set his level of aspiration closer to the objective O's prefer for him the higher the subjective probability of reaching that level.

21. The greater O's control over P, the stronger is P's feeling of success or failure from a given discrepancy.
22. The more P perceives that a given negative discrepancy is due to situational restraints the less he will have feelings of failure.

23. A P who performs on a level at or above his level of aspiration will be less interested in the evaluations of him by others than a P who performs below his level of aspiration (Stotland et al., 1957).

24. The more P perceives a given negative discrepancy as an indicator of inadequate ability or capacity, the more he will have feelings of failure.

25. The choice of defense P employs in reacting to a negative discrepancy is determined by the defenses he is "allowed" to use by O's.

26. An objective preferred for P by O's is accepted by P to the extent that the dimension is seen by P as socially relevant (Stotland et al., 1957).

27. Persons with high self esteem are more likely to resist acceptance of an objective proposed by O's than are persons with low self esteem (Stotland et al., 1957).

28. P's resistance to the objectives prescribed by O's decreases to the extent that P places value on the goals of O's organization.

29. P will reject O's who prescribe levels of performance for P to the extent that O's are seen as unable to evaluate accurately P's present level (Stotland, et al., 1958; Festinger, 1954).

30. P's who are in jobs in an organization for which O's hold too easy objectives are unable to have feelings of success.
Emotional Tension

1. The greater the fixed discrepancy between P's performance and his level of aspiration the greater the signs of emotional tension in P.

2. The greater the feelings of shame from low self evaluation the more the accompanying signs of emotional tension and neurosis (Leighton et al., 1958).

3. The more P deviates from the goal preferred for him by O's the greater his emotional tension.

4. The greater the fixed negative discrepancy the less will P be attracted to his career, his job, his company (Jackson, & Saltzstein, 1958; Rasmussen & Zander, 1954).

5. The greater the emotional tension in P the more he will seek to avoid or destroy O's control over P.

6. The stronger the emotional tension for P the greater is the likelihood that P will exhibit signs of psychosomatic disorders.

7. There will be a greater negative discrepancy in ulcer patients than in neurotics or normals (Raifman, 1957).

8. Among clerical workers men will show higher tension than women (Gurin et al., 1959).

9. Non-executive male office workers will have a higher incidence of hypertension and arteriosclerosis than executives (Lee & Schneider, 1958).
Shift Work and Mental Health

Introduction

This project is proposed as one of the first studies in our Institute's industrial mental health research because we believe the problem area is important nationally and programmatically. Systematic research on the effects of shift work will contribute to improving the health of a large segment of our nation's working population. Research in this area will also speed the development of our program theoretically and methodologically. The importance of this problem area nationally will be considered first.

Shift Work: A Requirement in an Industrial Society

During World War I and in the twenties a number of studies in industrial medical and psychological research concentrated on the effects of work schedules of different lengths and arrangements. The relationship between work weeks of different duration, the spacing and frequency of rest pauses, and individual performance were explored. In fact, the initial Hawthorne studies were a part of this emphasis on understanding how the schedule of hours employees worked affected their on-the-job performance. The research of that period focused on the employee as a unit in the production process. There was little or no concern about how different work schedules affected the individual as a whole person, as a husband, a father, a citizen with role obligations in other groups within the society. It is not surprising then that virtually no research was done at that time on demands that shift work placed on the individual and his family, and only a little has been done since then.
Shift work has been and will continue to be an important problem for our industrial society. There are many organizations and productive processes which must be manned on a twenty-four hour basis. These include defense and military establishments, and industrial plants such as power plants, steel mills, and refineries. Many other organizations find it economically profitable to operate a second and at times a third shift. The proportion of the labor force working "odd" hour shifts is not known, but it is larger than we typically assume. Moreover, it will probably continue to be large. The following tabulation indicates the per cent of employees working shifts in a few of the organizations studied by the Organizational Behavior Program of the Institute during the last decade:

- Light and power company (non-supervisory men) 23%
- Large tractor manufacturing plant (hourly) 43%
  - 2nd shift 25%
  - 3rd shift 18%
- Oil refinery (non-supervisory men) 38%
- Ten community general hospitals' (2nd-3rd shifts)
  - Supervisory Nursing Personnel 30%
  - Registered Nurses 62%
  - Practical Nurses 45%
  - Aides and Orderlies 58%

There is also a good deal of evidence which suggests that shift work will continue to be important even in a highly automated industrial system. As capital investment per employee increases and becomes a proportionately greater fixed cost, management will extend the production operations from an eight to a sixteen and eventually a twenty-four hour day. This change will affect office as well as factory workers. With the installation of large expensive electronic data processing equipment, companies are
already initiating second and third shifts for some groups of their white collar employees. Traditionally, this population of workers has been aware and proud of the similarity of their working environment and hours to that of management. The physical and social costs of the new requirement may be much more difficult for the white collar worker to handle than it has been for his blue collar counterpart. It appears that shift work is one of the concomitants of industrialization.

In a sense the requirement that a worker learn to adjust himself to shift work represents the ultimate in demand that man adapt to a machine environment. Shift work requires the individual to adapt physiologically, psychologically, and sociologically. Physiologically, his basic body rhythms, which are related to the day and night cycle of our planet, have to be changed weekly to meet some shift rotation cycles. Changes in the diurnal cycle of sleep and wakefulness affect the emotional stability, efficiency, and adjustment of the individual. Sociologically, the shift worker is expected to fulfill his other roles as husband, father, relative, friend, elder, and parent, in a society in which the members of his family and other institutions follow the conventional community patterns of living: work, play, sleep. Little wonder that shift work is usually roundly disliked by most employees, positively liked by only a few. Half of those working shifts in our study of an electric and power company reported they disliked working shifts, 30 per cent indicated they did not mind, less than 20 per cent said they liked working shifts. (There are some significant exceptions to this -- and we appear to have just uncovered one in our study of shift workers in an oil refinery -- but most American and European research indicates employees dislike shift work.)
Shift workers typically complain of loss of sleep, appetite, and regularity of body functions. Those with weak visceral tracts, a tendency toward gastric disorders or nervousness, are recognized medically as poor risks for this type of work. Ulcers appear to be re-activated by shift work. It is clear that the demands of these odd-hour work schedules sharpen body-mind conflict -- especially as the physical animal tries to meet the expectations of the social animal.

Shift workers frequently point out that although their bodies are tired from loss of sleep during their turn on the night shift, they find themselves trying "to get just a couple of more hours of living in" with their families or their friends. It is not at all uncommon to find a single worker trying to keep ahead of the competitors for the girl friend's hand giving up hours before or after work which should have been given over to sleep.

While adjustments required by shift work may be very stressful, not all work schedules are equally difficult to adjust to, not all individual workers find their shift work schedules equally difficult to live with. Work schedules vary tremendously in the demand they make of workers. Some patterns are clearly more tolerable than others. The advantages and disadvantages of different patterns, the positive and negative elements of different patterns are however relatively unknown. The effect of different patterns on individuals with different personality needs and values is totally unexplored. The origins of the shift patterns which are employed today in our industrial society are better understood as historical accidents than the result of rationally planned and tested procedures for handling a major societal requirement. It seems probable that a systematic attempt
to uncover the effects of different shift patterns would point the way toward lessening the social costs of shift work to the industrial worker and his family.

**Shift Work: Relevance to Industrial Mental Health Program**

Programmatically, we are interested in this problem area for a number of reasons. One principal reason is that a thorough study of the effects of shift work requires a study of the individual as a whole person. The total life of the worker -- the full cycle of work, play and sleep -- has to be investigated if the full effects of shift work are to be understood. It is not enough to focus on the work role without considering its relationship to the family role and other roles. Since our work in the past has seldom required that we deal with the individual as a whole, this problem area will help us develop knowledge and methodology particularly relevant for our industrial mental health program.

The frequency of the demand that a rotational shift work pattern places on the individual to adjust is also important to us. There is a good deal of evidence that change itself is stressful, and even more that demands for rapid adjustment of the individual is doubly stressful. Some shift work schedules appear to compound stress for the individual physically and socially.

The impact that shift work has on many workers is marked. It appears to be large enough to allow us to study the interrelatedness of a sizeable array of the independent, conditioning, and dependent variables in which we are interested in this program.
The problem area also provides good coverage of the range of criteria with which we will be concerned in the program. They include physiological and affective states at one extreme and psychosomatic symptoms, illness, and longevity at the other. While we shall probably not be concerned with many of these long term effects in this particular project, we may wish to study them subsequently. An additional point is that there are good operational measures for many of our criteria.

A final reason for our belief in the significance of this area for our research program is that there is evidence that adjustment to some types of shift work patterns requires the creation and elaboration of a number of coping mechanisms. This also is an area in which we want to focus a good deal of work early in the program.

Research Objective

The principal objective of our research in this area will be to develop and test a theoretical model of the relationship between the work schedule and the mental health of the shift worker.

We will want to determine (1) the general effects of shift work on mental health, and (2) the effects of different shift patterns on mental health. Early efforts will need to be focused on constructing a theoretical model which will relate both environmental and personality variables to variables relevant to mental health of shift workers. Comparative studies of different shift patterns and longitudinal pilot studies will need to be made to establish empirically the interrelationship among the variables of the model. Once the relationships among the major variables have been determined the principal objectives of the research should shift
to testing the theory by changing shift patterns and studying the effects of these changes on actual working populations. While these experiments will be designed primarily to determine the adequacy of the theory, they will also provide information about the methods by which such changes can be introduced. In brief, our research in this area should be organized to develop knowledge and theory about the effect of different multiple shift schedules on mental health, and eventually to demonstrate through field experiments how the findings of the research can be employed to improve the health and well-being of the shift worker.

Formulation of the Problem Area

Our approach to this problem area is formulated to be consistent with the theoretical conceptualizations we have developed for a program of research in the field of industrial mental health. The basic assumption is that behavior is determined by both the environment and the person. Our overall program plan calls for the study of the interrelationship among three major classes of variables: (a) factors in the objective and psychological environment, (b) factors in the person and his personality, and (c) manifestations of mental health. The program is designed to focus on the effects of the environment on mental health of persons with different personality characteristics.

The theoretical framework for our shift work project contains four major groupings of variables: (a) the factors in the objective environment will be treated as independent variables in our scheme -- the work schedule characteristics or the shift work pattern, (b) conditioning variables in the objective environment, e.g., family, community, etc., which augment or diminish the effect of the shift work pattern, (c) conditioning
variables in the person, e.g., his needs, values, perceptions of the environment, etc., which also may alter the effect of the shift work pattern, and (d) dependent variables indicative of mental health -- physiological and affective states, and psychosomatic symptoms. A schematic representation of the interrelationship among these variables is given in Figure V:2.

An illustration of how this framework will allow us to organize our variables and to distinguish between the impact of the same shift pattern in two hypothetical cases might be shown as follows:

The shift worker who works under a weekly rotating shift plan working nights one week, afternoons a second week, and days a third week, will be much more satisfied with this work schedule if he lives close to the plant and his wife does not work outside the home, and if his body is able to adjust within three days to each rotation (the normal rate) than another worker on the same shift who lives about the same distance from the plant, whose wife works outside the home, and who finds he also can adjust to each rotation in about three days.

The diagram and this example suggest how specific variables will fit within these four broad groupings of variables.
Figure V:2
Shift Work and Mental Health
-Schematic Representation of Interrelationship Among Categories of Variables-

- Work Schedules: Shift vs. Non-Shift
- Patterns of Shift Work:
  1. Variability of Work Period
  2. Hours
  3. Etc.
- Trans. Dist. of Work
- Other Workers
- Family
- Life Cycle
- Shift Work
- Type of Work
- Housing
- Quiet
- Community Facilities and Customs

PHYSIOLOGICAL ADJUSTABILITY
PERSON AND EXPERIMENTAL VARIABLES
1. Age
2. Education
3. Socio-Economic

PHYSIOLOGICAL STATE
1. Sickness & Absences
2. Feelings of Fatigue and Tension

AFFERENT STATE
1. Satisfactions with Shift Work
2. Work Satisfactions
3. Life Satisfactions

SELF-IDENTITY STRUCTURE
1. Restriction of Some Identities
2. Elaboration of Other Identities

HEALTH
1. Psychosomatic Symptoms
2. Longevity

PRODUCTIVITY

THE ENVIRONMENT
PSYCHOSOCIAL ENVIRONMENT AND PERSON
In the remainder of this section, this framework will be elaborated to present (a) other relevant variables, (b) findings from research, and (c) occasionally some tentative hypotheses about specific variables in areas where research has not been undertaken. This formulation of the problem area in outline form will be followed by a statement of several broad, integrative hypotheses to be tested in this study.

1.0 Independent variable: work schedule variables or "shift work pattern"

When we think about the working hours in our society, we typically think of people working from morning until late afternoon, five days a week. While we recognize that some people start working a little earlier than others, some work a full eight hours a day, and others somewhat less than eight hours a day, the image that first comes to mind is that of the allocation of the hours of daylight to work, twilight and evening hours to family and recreation, and night to sleep. Our society -- like most -- is organized to take account of the astronomical fact of the succession of day and night.

With a second thought about working hours in our complex industrial society we remind ourselves that these are the day workers and there are a number of jobs which must be continuously performed or done at times other than the usual working hours. These include a wide variety of occupations whose members labor at "odd hours" -- shift workers in factories, police and firemen, bakers, transportation workers, etc. These are the night workers and the shift workers.
Those people not working during the day meet a wide variety of working schedules. Even within the restriction of an eight hour working day and a forty-hour work week, the number of different ways of scheduling work is very great. To study the effects of different work schedules, it will be necessary to specify all of the variables which account for these differences in schedules. We will have to be able to describe precisely the objective differences between different patterns of working hours. The categories or variables we use will need to be general enough to describe any schedule of work. We will however be primarily concerned with shift work.

Work schedules vary depending on whether employees work fixed or rotating shifts, split or continuous hours, six or eight hours per day, four or seven days in sequence, etc. The differences in the effects of specific shift work patterns can be illustrated by comparing the shifts we found in a study of two power plants (Mann & Hoffman, in preparation). The pattern in one plant was spoken of as "a weekly four-shift;" the pattern in an old plant as "a monthly three-shift pattern."

In the new plant the three shifts started at 8 AM, 4 PM, 12 midnight, respectively. These three shifts were manned by four operating groups. The pattern of rotation, which permitted three working groups and one "off" group at any particular time, was essentially "a weekly one." The week was a full seven days, however, not the usual five. The schedule plan was 7-1, 7-2, 7-4 -- i.e., the men worked seven days, then had one day off, worked seven days on the second shift then had two days off, and then worked seven days on the third shift and had four days off. Schedule-wise, this pattern meant that
a. the men worked seven consecutive days between off-days

b. they worked a different shift after each period of off-days (in other words a rotation cycle periodicity was essentially weekly)

c. that the men and their supervisors always changed shifts at the same time (rotation unit -- the primary organizational family)

d. that week ends (Saturdays and Sundays) off occurred every four weeks

e. that there was one over-time day for each shift every four weeks, and this meant 7-1/2 per cent extra pay per man, per year.

Different men liked this pattern for different reasons. Among the advantages they pointed out were:

a. they did not have to be away from their families during the evenings for an entire month

b. the long change-over of four days each four weeks seemed like a vacation

c. Saturday-Sunday "off" days came up once every four weeks. In addition, Saturday and Sunday evenings were free when a man was working the day shift. Most men said that this made for a better home and social life because they could plan weekend and evening get-togethers with non-shift friends without having to wait seven months for Saturday and Sunday off.

d. by splitting vacations to add on to the four day shift change-over, it was possible to make up several fairly long vacation periods per year

e. that this type of shift was not so monotonous

f. that because shifts changed as teams, men found it easier to set up car pools

g. that it was possible to get more sleep with only a week of night work at a time. The week ends off in the monthly schedule meant the man was essentially working a five day schedule and never got a sleeping pattern firmly established during the days of the whole month that he was working nights.
In the old plant, the three shifts started at 7 AM, 3 PM, and 11 PM, but only three groups of men operated them. The pattern of shift rotation in this plant was a monthly one, but each worker and supervisor had his own individual schedule of rotation. The week was a five-day week. Schedule-wise this meant that:

a. the man worked five (occasionally six) consecutive days before any off-days

b. they worked the same shift four (occasionally three) consecutive weeks before they changed shifts (in other words, rotation was essentially a monthly plan)

c. that each man and his supervisor in a work group had his own schedule of shift rotation

d. that week ends (Saturdays and Sundays) off occurred for a man only once every twenty-five weeks -- once every half year.

This plan the men pointed out meant:

a. one entire month at a stretch away from the family during the evenings

b. "off" days rotate; a man may have Monday-Tuesday as "off" days on one shift for an entire month; the next month Tuesday-Wednesday; etc., making it very difficult for friends to know when to expect to find him at home

c. when the Saturday-Sunday off-days do occur during a night shift, the man gets Friday night for Saturday and Saturday night for Sunday then has to report in Sunday night for Monday

d. during periods of overlap at shift changes, the crews were all mixed up, with men of one shift reporting for work under a foreman of another shift.

It should be noted that under both of these plans the rotation sequence was the same -- night to afternoon to day. Moreover, the work day was eight hours in sequence with relief by another worker for a half-hour lunch break sometime during the shift.
In order to determine the differences in the effects of shift patterns it is necessary to describe some of the principal characteristics underlying work schedules and to isolate their consequences.

Following is a first classification of these elements.

1.10 Variability of working period. The period designated for work may be permanently fixed or changing (rotating)\(^1\).

1.11 Rotation cycle periodicity. Rotation may occur on an annual, monthly, bi-monthly, weekly, or daily cycle.

... "the balance of available evidence suggests a fortnightly change of shifts would be the most effective compromise from the standpoint of health, efficiency and personal satisfaction, but further investigation is necessary" (Wyatt & Marriott, 1953)

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\(^1\) Relatively little systematic and sustained work has been done on the effects of shift work. Personnel staff men and industrial physicians have occasionally written insightful pieces in this area -- particularly during periods of national emergencies. Researchers from a wide variety of fields have also occasionally studied some limited facet of this problem area. The activities of these different groups have resulted in a number of ideas and a few facts at quite different levels of abstraction and certainty.

In our framework we are attempting to arrange these "bits and pieces" into a meaningful integrated picture which may serve to help us see where to concentrate our research energies. Thus, the outline style we employ in the following pages is both indicative of the state of the field and our first notions about how a number of diverse facts, hypotheses, and plain hunches about the effect of shift work may eventually be tied together.

It is an outline which contains observations from writers who have simply given some attention to this problem area as well as carefully substantiated findings from empirical research. The findings and observations from previous studies will be designated by citations to the relevant publications. Where citations are not given, the ideas are taken from one of the principal investigators (Mann's) own research and experience with shift workers.
... eighty-one per cent of the men working a shift pattern with a rotation cycle of seven days felt they adjusted to the most difficult shift change (the day to night change) within two or three days, but only thirty per cent of the men working under a monthly cycle felt they adjusted within three days (Mann & Hoffman, 1959).

1.12 Rotation sequence. What is the rotation pattern? Day-night-afternoon or afternoon-night-day.

... the sequence which is reported to be the easiest to handle physiologically is night to afternoon to day.

1.13 Rotation unit. Is the unit an individual, a crew of men only, primary organizational unit of men and their supervisor?

... simultaneous rotation of supervisor and men kept work groups intact and may have contributed to the positive feeling existing between men and supervisors (Mann & Hoffman, 1959). The instability of working hours makes it essential that each have a maximum stability of supervision in the person of an able, well-trained foreman who stays with his crew (Pigors, 1944).

... more men knew each other under a shift pattern in which they rotated as individuals than under a pattern in which they rotated as a group (Mann & Hoffman, 1959).

1.20 Number of days worked in sequence (days in sequence). The typical "work week" is five days, but some schedules call for only three or four days in sequence, others for seven.

... while a seven day shift was found to have many advantages, many working this pattern said "There are too many days of work without days off." (Mann & Hoffman, 1959).

1.30 Number of hours worked in sequence (hours in sequence). The typical "work day" is eight hours in sequence with an hour out for a meal half way through. In some work schedules there is no break, employees are on the job for eight hours straight. In others -- the "split shift" -- the break may run from one to eight hours between work periods during a day.

... the split shift forces the worker to organize some of his day around his work role.

1.40 Hours per day (hours per day). While the typical day is eight hours, schedules vary markedly -- from four to ten hours. Some schedules call for three eight-hour shifts; others for four six-hour shifts; a few shorten the night shift to six hours and increase the other two to nine hours.

... there is a good deal of evidence that six-hour shifts result in "moon-lighting" -- workers taking a second job.
1.50 Starting times. Work periods start at a wide variety of hours during a day -- 6 AM, 7 AM, 8 AM, etc.

... the earlier starting times allow the worker on the evening shift to see his wife after coming home.

2.0 Conditioning variables in the objective environment

We will distinguish two broad classes of conditioning variables: those in the objective environment; those in the person. These two classes of conditioning variables may alter the effect that the work schedule has on the worker.

Some of the more important groupings of the conditioning variables in the objective environment as identified from previous research are as follows:

2.1 Family life cycle stage

... single men complain more than married men of loss of evenings (Philips Company Study, 1958)

... young married family needs money, both husband and wife more willing to have husband work shifts to get the wage differential allowed for shift work

... shift work means insufficient time for the family (Philips Company Study, 1958)

... family complaints strongest for those between 30-39 (Philips Company Study, 1958). Age of children appears to be affecting this.

... men whose wives work outside the homes are less satisfied with shift work (Blakelock, 1959)

2.2 Housing arrangements

... bad housing conditions contributing to sleeping difficulties associated with shift workers' tendency toward nervous diseases and gastric ulcer (Thiis-Evenson, 1959)

2.3 Home-plant location

... the greater the distance between the plant and the home, the greater the dissatisfaction with shift work (Philips Company Study, 1958; Wyatt & Marriott, 1953)

... length of time it takes to get to work is inversely related to satisfaction with shift work (Blakelock, 1959)
2.4 Community related variables

2.41 Community recognition of shift worker

... less dissatisfaction with shift work where community recreational and social facilities available on 24-hour basis (Figors, 1944)

2.42 Shift work a predominant and traditional form in the community

... shift work is accepted more as a part of the way of life in those communities where a large proportion of the population works shifts. Sixty-five per cent of the shift workers in a small railroad town which has subsequently become a petrol-chemical processing community like shift work while only 20 per cent working shifts in an urban community said this (from an early comparison of findings from our own studies of shift work)

... urban workers more frequently wanted to get out of shift work under any circumstances since they constantly are reminded that others live and work normally. Dissatisfaction with shift work associated with sense of relative deprivation (Philips Company Study, 1958)

2.5 Kind of work done

2.51 Physical exertion

... temperature inversion (and adjustment to shift work presumably) occurs more rapidly for those doing strenuous physical work (Teleky, 1943)

2.52 Other dimensions of the job. These would include closeness of attention demanded, importance of the work, interdependence of tasks, extent of problem-solving in the job, the amount of attention the job has to be given by the supervisor, etc.

... one compensation the men mention regarding night and evening shifts is that they are not as closely supervised as during the day

2.6 Type of supervision

... highly authoritarian supervisors seemed doubly oppressive to the men on the night shift
2.7 Values of relevant others on and off the job

2.7.1 The worker's immediate family

... the wife's evaluation of shift work job held by her husband is directly related to his satisfaction with shift work (Mann & Hoffman, 1959; Wyatt & Marriott, 1953; Blakelock, 1959)

... wives especially often mentioned the factor of extra money as one of the reasons why they liked their husbands to work shifts (Philips Company Study, 1958)

... men whose fathers worked shift work are more satisfied with shift work

2.8 Plant eating customs

Men in each plant or company have their own customs regarding what is the appropriate time to eat during the evening -- and particularly the night shift. In the two power plants the men ate at 12 midnight whether that was their starting time (in the new plant) or one hour after they came in (in the old plant). This was in spite of the fact that they would have nothing more to eat during the seven or eight hours remaining of the shift except coffee.
3.0 Conditioning variables in the person

While a good deal of research has been done on the relationship between the temperature cycle of the body and shift work, very little research has been done relating personality and shift work. Most of the ideas in this section are very tentative. They are taken from personal experience with shift workers, discussions with staff personnel concerned with their selection and placement, and doctors who have examined shift workers over the years.

3.1 Physiological adjustability: rate of adjustment to change in basic work, play, sleep cycle.

3.11 Temperature cycle inversion

It has long been known that there is a diurnal temperature cycle, with the maximum occurring during the hours of wakefulness and the minimum during sleep. The pattern for the typical day worker shows a low in the early morning hours (3-5 AM) and a plateau during the day (between 9 AM and 5 PM) or a gradual rise to a peak sometime during this period. The pattern is relatively fixed, changing only after three or four days for most people. There is a good deal of variation in the stability of this cycle, and in the rate at which it can be changed among individuals. The temperature cycle pattern of the person who is physiologically adjusted to working nights and sleeping during the day is referred to as being inverted -- that is in comparison to the cycle of the typical person. Reversion of the cycle refers to the return of the temperature cycle from an inverted state to the usual pattern.

... reported ease of adjustment to shift change related to body temperature cycle (Kleitman & Jackson, 1950)

... reversion of temperature cycles occur more quickly than inversion (Goldstein, 1913)

... workers like returning to the day and evening shift a good deal more than to the night shift

... the length of time that workers reported that it took for them to adjust to the hardest shift change (the day to night change) was related to satisfaction with shift work (Mann & Hoffman, 1959)

3.12 Visceral tract adjustability

... complaints about eating more often by young (20-25) and middle aged (25-45) than older (45 +) (Philips Company Study, 1958).
3.13 Other body rhythms:

... defecation the most difficult cycle to change (Teleky, 1943)

... the longer it takes to adjust to a shift change the greater the dissatisfaction with shift work (Wyatt & Marriott, 1953)

... several days to adjust to a new shift; one-fifth of the men said it took four days or longer to adjust

... thus some never adjust to a weekly rotation pattern (Wyatt & Marriott, 1953)

3.2 Education

... higher educated and higher social level had more complaints about shift work (Philips Company Study, 1958)

3.3 Work experience

... those who have had a year or more experience working at a regular day job with weekends off are less satisfied with shift work (Mann & Hoffman, 1959)

... those with eleven or more years of shift work experience are more satisfied with shift work (evidence of selection) (Mann & Hoffman, 1959)

3.4 Personality structure: needs

3.41 Affiliative

... those with high affiliative needs less satisfied with shift work

3.42 Security needs -- job or employment security

... shift workers have higher needs for employment security than non-shift

3.43 Other needs: achievement, autonomy, etc.

... shift workers have lower needs for autonomy than non-shift

3.5 Personal value

3.51 Sense of responsibility

... more shift workers feel it is important to have a sense of responsibility than non-shift workers
3.53 Value money

... shift workers value money more highly than non-shift workers

... those who liked shift work had an extra job (Philips Company Study, 1958)

... satisfaction with shift work negatively related to having an outside job (Blakelock, 1959)

3.6 Sub-identity structure -- self image

... dissatisfaction with shift work related to extent to which it precludes the maintenance of significant sub-identities of the worker

3.7 Coping mechanisms

3.71 Development of recreational patterns focusing on individual activities: golf, hunting, fishing, etc., may be related to positive adjustment.

3.72 Withdrawal from social activities probably related to negative adjustment.

4.0 Dependent variables

A number of different criteria will be investigated in this project. Some are directly relevant to an individual's mental health; others are more related to organizational effectiveness.

4.1 Physiological state

This general class of variables includes both objective data from medical records and the person's own report.

4.11 Sickness and absences

... absences for illness no greater for shift than day laborers (Philips Company Study, 1958)

... day shift absence rate not significantly different from night shift for same men working day and night rotation (Wyatt & Mariott, 1953)

... day shift absences higher in ten English factories (Wyatt & Marriott, 1953)

... shift workers absence rate lower than non-shift (Mann & Sparling, 1956)
... rotation effect:

- bimonthly rotation: absences less in second week of day shift; absences higher in second week of night shift than in first (Wyatt & Marriott, 1953; Ministry of Munitions, 1917, 1918)

- monthly rotation: absences in four successive weeks tended to decrease on the day shift, to increase on the night shift (Wyatt & Marriott, 1953)

4.12 Psychosomatic manifestations

... shift work aggravates already present ulcers, speeds their reactivation (Thiis-Evenson)

... the excess of digestive diseases (gastric ulcers) with shift workers occurs mainly with young persons and after a relatively short period of work (four years) (Thiis-Evenson, 1953)

... workers first experiencing shift work (first fourteen weeks) become increasingly "neurotic" on Eysenck's scale (Berendrecht)

... the frequency of gastric ulcer is about twice as frequent with those having had or having shift work as with day workers (Thiis-Evenson, 1953; Thiis-Evenson)

4.13 Longevity

... shift workers show no tendency toward earlier treatment than day workers (Thiis-Evenson)

... shift workers died at higher average age than day workers -- though not statistically different (Thiis-Evenson)

... shift workers having worked over ten years have a greater length of life after retirement than day worker (Thiis-Evenson)

... workers having done the longest periods of shift work have the lowest morbidity of all workers in the plant (Thiis-Evenson)

4.14 Feelings of fatigue

... 83% felt most tired on night shift; 9% on day; 8% no difference (Wyatt & Marriott, 1953)

... not feeling fit, lassitude, feeling of exhaustion mentioned more often by older than by middle and young groups (Philips Company Study, 1958)
... no evidence that night labor more physically tiring (Philips Company Study, 1958)

... satisfaction with shift work negatively related to
- feeling tired often
- tired when finished work (Blakelock, 1959)

4.15 Feelings of tension

... satisfaction with shift work negatively related to
frequency work makes worker feel tense and edgy (Blakelock, 1959)

4.16 Own evaluation of health

... satisfaction with shift work directly related to own
evaluation of health (Mann & Hoffman, 1959; Blakelock, 1959)

4.17 Disturbed digestive system

... prepare own meals for delicate stomach, bring food from
home: 25% could not face canteen dinners (Wyatt & Marriott, 1953)

... complaints about eating more often by young (20-25) and
middle aged (25-45) than older (45-::) (Philips Company
Study, 1958)

... 43% taking patent medicine every day or several times
a week to counteract disorder of stomach (Wyatt & Marriott, 1953)

... loss of weight: 2.02% of average body weight lost on
going on night shift (Yagi, 1913); 20 out of 28 lost
weight (Goldstein, 1913)

... no difference in weight, hemoglobin, and blood pressure
between day and shift workers (Thiis-Evenson, 1953)

... rotation effect:
- going from night to day: 61% claimed adjusted immedi-
ately; rest within 1-6 days
- going from day to night: only 37% adjust immediately;
27% in 1-3 days, 12% in 4-6; 14% never adapted
(Wyatt & Marriott, 1953)

4.18 Disturbed sleep

... one-third mentioned disturbing noises -- 24% attributed
wakefulness to nerves, restlessness, fatigue (Wyatt &
Marriott, 1953)

... complaints about sleeping equally frequent in all age
groups (Philips Company Study, 1958)
... light nervous complaints (insomnia, etc.) are more frequent with shift than day workers (Thiis-Evenson, 1953)

... rotation effect

- 83% adapted themselves immediately to normal time upon going from night to day; 50% going from day to night (Wyatt & Marriott, 1953)

4.2 Affective states

4.21 Satisfaction with lot in life

... loss of leisure time that occurs at same time with rest of community; lack of free time in the evenings

... having to work Saturday PM's, holidays (when others are not) (Philips Company Study, 1958; Berendreft)

... think in a rut (Blakelock, 1959)

... feeling of having too many things to do (Blakelock, 1959)

... not being able to fit another activity into an already full schedule (Blakelock, 1959)

4.22 Work satisfaction dimensions

... satisfaction with shift work related to intrinsic job satisfaction, feelings toward supervisor, overall job satisfaction, feelings about pay relative to others (Blakelock, 1959)

4.23 Satisfaction with shift work

... social complaints not strong enough to account for leaving shift work (Philips Company Study, 1958)

... own satisfaction with shift work directly related to the family feeling about husband working shifts (Mann & Hoffman, 1959)

... satisfaction with shift work directly related to frequency shift workers felt they could get together with friends (Mann & Hoffman, 1959)

... satisfaction with shift work directly related to whether shift worker would take a shift work job again if he were starting over (Mann & Hoffman, 1959)

4.24 Accidents

... slightly higher on night shift than day shift, but not significant (night less inclined to go to infirmary) (Wyatt & Marriott, 1953)
4.3 Change in sub-identity structure

4.3.1 Restriction of some sub-identities

4.3.1.1 Husband

... more divorce among shift workers
(Wyatt & Marriott, 1953)

... wife left alone at night (Philips Company Study, 1958)

... 17% of shift men mentioned spontaneously complaints connected with wife and family (Philips Company Study, 1958)

4.3.1.2 Father

... can not be together with children regularly
... insufficient time for the family (Philips Company Study, 1958)

4.3.1.3 Relative -- role in the larger family

... no significant difference in frequency of visiting patterns with relatives for shift and non-shift workers (Mann & Hoffman, 1959; Blakelock, 1959)

4.3.1.4 Friend

... shift workers felt excluded from social activities (Philips Company Study, 1958)

... shift workers get together less often with friends than non-shift workers (Mann & Hoffman, 1959; Blakelock, 1959)

... shift workers do not visit co-workers any more frequently than non-shift workers (Mann & Hoffman, 1959)

... slight tendency in a refinery for shift workers to visit co-workers more frequently (Blakelock, 1959)

4.3.1.5 Citizen

... attend fewer meetings per month than non-shift workers

... hold fewer officerships (Blakelock, 1959)

4.3.1.6 Educated man

... extension courses not given at night time for night worker or those on shifts (Philips Company Study, 1958)
4.33 Facilitate the development of other identities

4.331 Leisure time avocations
   - hunter, fisherman, gardener, etc.

5.0 Job performance

5.1 Productivity

   ... average hourly output slightly higher on day than night (Wyatt & Marriott, 1953)

   ... 68% claimed they worked better on day than night (Wyatt & Marriott, 1953)

   ... one-third worked just as well or better on night than day (Wyatt & Marriott, 1953)

   ... rotation effect:

   - alternate periods of two or four weeks on day or night likely to be less productive than continuous (Wyatt & Marriott, 1953)

   - bimonthly rotation: output on day shift higher the second week than the first; output on night lower the second week. The effect of the night shift period reduces the rate of working in the following day shift period (Wyatt & Marriott, 1953)

   - monthly rotation: output on day shift higher each successive week; output of night shift drops the second week and then recovers (Wyatt & Marriott, 1953)

5.2 Errors

   ... a change in temperature cycle adversely affected by reaction time (Kleitman & Jackson, 1950)
Principal Hypotheses

Having presented our formulation of the problem area and used it as a framework to organize knowledge now available and some of our first specific hunches regarding gaps in our knowledge, we can now state the major, over-arching hypotheses of the proposed study. They are as follows:

1. Shift work frequently results in indications of poor mental health.
   
   More shift workers than non-shift workers will show
   
   feelings of fatigue,
   feelings of tension,
   symptoms of ill health:
   poor appetite, indigestion, diarrhea, constipation,
   headache, backache,
   visual spells, pains in chest,
   numbness of the extremities, etc.
   ulcers
   dissatisfaction with lot in life
   work situation, etc.
   restriction of sub-identities

2. Some shift patterns can be more easily adjusted to than other shift patterns.

   The criteria of adjustment are the same as those given under the first hypothesis.

3. There is wide variation among workers in their ability to adjust to any given pattern of shift work.

   Ability to adjust related to:

   Conditions in the environment
   family cycle stage
   housing arrangement and location
   community customs and facilities
   type of work

   Conditions in the person
   stability of body rhythms
   personality structure
   coping mechanisms
It is clear that these three integrative hypotheses include a much larger number of specific hypotheses than given in the preceding section. There are several additional questions which we will want to investigate as the opportunity occurs. These include such theoretical problems as what factors are associated with the individual learning to cope with the stress of shift work, and such empirical problems as what is the interrelationship among our dependent variables.
Appendix

THE SOCIAL ENVIRONMENT AND MENTAL HEALTH

A Review of Research at the Institute for Social Research,

The University of Michigan

For about ten years staff members in the Institute for Social Research at The University of Michigan have been studying the effects of the social environment on the behavior of individuals and on the dynamics of organizations. Early in 1958 the Institute began a program of research on mental health in industry. In planning for that research a review was undertaken of the Institute's work relevant to mental health so that future investigations might follow from earlier results and methods wherever possible. This report summarizes the results of the review. It encompasses findings from field studies of industrial organizations, from studies of other organizations, and from experiments in field and laboratory settings.

Attempts to explain the effects of the "social environment" on "mental health" have characteristically tried to answer the question: what environmental conditions, past or present, are responsible for an individual's development of a particular symptom? This review approaches the relation between the environment and mental health from a broader perspective. Some assumptions in this perspective are worthy of special note.

1. Behavior is a function of the nature of the person and the nature of his environment. Changes in the nature of the person or in the nature of the environment may interact to produce changes in behavior. The study of mental health, since it is the study of behaviors, requires an investigation of this interaction.
2. This interaction may be described in terms of a specified number of variables or dimensions. Many behavioral variables are relevant to mental health. Variables with the most relevance are those describing common criteria of positive mental health on the one hand or symptoms of mental illness on the other.

3. A symptom of illness may be conceived as an extreme "negative" point on one or more of these dimensions, and a sign of good mental health may be conceived as a positive point. Rather than contrasting the determinants of symptoms alone, we shall deal with entire dimensions of behavior, not specific "positive" or "negative" points on these dimensions.

4. Mental health describes the state of a person at a given time in a given situation. Since this state may be described by a number of continua, one may speak of degrees of mental health.

5. The evaluation of the mental health of a person is based on a judgment about his behavior with reference to an external set of values. Whether the dimensions used below can justifiably be considered criteria of mental health demands value considerations which are outside the scope of this review.

What behavioral variables are the most relevant to mental health? From a multitude of possibilities we must select a manageable few. A usable set is provided in Marie Jahoda's recent book Current Concepts of Positive Mental Health (1958). Her discussion provides a fairly complete summary of variables which are considered important by writers on mental health. Using the criteria suggested by Jahoda as a point of departure and eliminating those for which data from studies in the Institute were negligible, we have organized this report around the following classes of variables:
(a) affective states, both unpleasant and satisfying; (b) contact with reality; (c) attitudes toward self; (d) utilization of abilities; (e) aggression; and (f) stable interpersonal relationships.

The procedure in collecting material for this review was to search for studies in which the dependent variables were the same as, or close to, the mental health criteria described by Jahoda. The results in published and unpublished studies, as well as findings not included in final reports (banished to a file drawer until the day when they might be useful) were noted. Many of the concepts mentioned by Jahoda were found to have been used in studies by members of the Institute; a few studies, to which we shall frequently refer, proved especially fertile since they used more than one of these mental health dimensions as dependent variables. We now feel like the man who discovered that he had been writing prose for years and had not previously been aware of his erudition.

Ideally, we aspire to present coherent bodies of data indicating those environmental and personality variables which, in interaction, produce changes in behavior relevant to mental health. Most of the studies reviewed here, however, do not make a specific examination of the interaction between person and environment; instead, they view behavior in relation to varied environmental conditions and assume that personality variables are constant in the samples studied. We shall single out for special attention those studies which examine the interaction between person and environment.

The results reported here are based upon the behavior of normal persons in normal settings. The subjects in these studies are workers, college students, or other individuals who for the most part are well enough to hold jobs, attend school, or take an active part in community life. Their
behaviors seldom approach the intensity or duration of a "symptom" in the usual sense of that term. Furthermore, few of the social situations used as research sites are as stressful or as benign as the extremes men can generate for one another.

Affective States

The nature and origins of emotional behavior has often played a part in the Institute's studies of social situations. Findings concerning affective states are obviously relevant to mental health. They fall naturally into two broad classes. On the one hand are those results concerning tension, anxiety, and other relatively diffuse unpleasant reactions which constitute the negative end of an affective continuum. On the other hand are results describing a person's less diffuse, more object-specific, feelings of satisfaction about his environment and about his place in this environment.

Unpleasant Affective States

A discussion of affective states, uncomfortable for the persons who are in them, appears in some form in almost every theory of mental health. Various terms such as tension, strain, anxiety or frustration have been applied to these states. In spite of important differences in the nature of the concepts, there is a widespread agreement that their common elements are: (a) an unpleasant feeling, (b) often directed toward no specific target, and that (c) efforts are frequently made to get rid of the affect.

What aspects of the environment might contribute to variations in intensity of these unpleasant states? Studies in the Institute have been concerned with two among many possible sets of conditions: (a) ones in
which the social environment is ambiguous or unstructured, and (b) ones in which individuals are placed under strong pressures to produce. We shall examine the data relevant to each of these sets of conditions and then attempt a general explanation for the separate results.

Situational unclarity. In abstract terms a person's environment is composed of parts (e.g., persons, offices, goals, functions) and of connections between these parts (e.g., paths, pressures, responsibilities). An individual may occupy one, or be one, of these parts and may be involved in one or more of the connections with other parts of persons. Unclarity exists where the parts or the connections among them are not understood by the person in a meaningful way.

Unclarity, however, is only a partial determinant of unpleasant affective states since the characteristics of a person who is placed in the situation must also be considered. For example, Cohen, Stotland & Wolfe (1955) tested the hypothesis that an ambiguous situation will be more frustrating than a more structured one. They assumed that people have a need for cognition which corresponds to their tendency to organize their experiences meaningfully, the assumption of such a need implying that tension arises from frustration of the need. In this experiment, an ambiguous story presented to subjects generated more frustration than a structured one, as measured by the subjects' ratings of the story. The degree of ambiguity was more important for the people with high need for cognition than for those with low need for cognition. Lack of clarity can doubtless also cause dissatisfaction of needs other than cognitive ones since unclarity makes it difficult for the performance of instrumental activities appropriate for their gratification.
Results follow showing that lack of structure in a situation is directly related to unpleasant affect, regardless of what needs may be involved.

1. Groups with an unclear goal and an unclear path to the goal tended to develop greater tension among their members than groups with a clear goal and a clear path to the goal (Raven & Rietsema, 1957).

2. Workers who described their foreman as one who does not check on them, does not keep them informed about what is going on around the plant, and does not let them know "where they stand with him," reported more nervousness on the job than workers with a foreman who provided this information (Neel, 1954, 1955).

3. Workers who had insufficient training (as they viewed the matter) for jobs to which they had recently been assigned, were more anxious than workers who felt that their training had been adequate for their new positions (Mann & Hoffman, 1956).

4. An unstructured situation in which the path to the goal was unclear, and a superior's instructions were unclear, generated more anxiety among workers with low self esteem than a situation in which both goal and comments were clear and workers were high in self esteem (Cohen, 1953, 1959). In this study neither the personality variable, high and low self esteem, nor the environmental variable, the amount of structure, generated as much anxiety alone as did the combination of the two personal and environmental variables acting together.

Pressures on the person. In a number of studies it has been noted that tension is greater in persons to the extent that they have pressures acting upon them to reach a given goal.
1. Workers on an assembly line in a factory were found to be more "jumpy and nervous" than those who did not work on the line. About half the workers on production felt that they either could not get their work done, or if they sometimes did get it done, felt pushed all of the time. Less than one out of four workers who were not on production felt this pressure.

2. Groups of Air Force officers who were required to hike over difficult terrain to reach a goal in a limited number of days were more tense, as reported by them each day of the trek, if they felt strong pressures from superiors to do well than if they felt weak pressures to perform effectively (Zander, Thomas, & Natsoulas, 1957).

3. Pressures on one another were stronger among members in groups with high interdependence than among members who had little interdependence. The stronger these forces, the greater the tension felt by the members, as indicated by private requests for a rest and by their feelings of uneasiness after the experiment. These forces were stronger for persons with low ego strength than for persons with high ego strength (Thomas, 1956).

4. Workers who described their foreman as a person who "puts responsibility on them when in a spot" were more nervous than workers under foremen who did not do this (Neel, 1954, 1955).

In sum, there is promising evidence that an unpleasant affective state may be associated either with lack of structure or with excessive social pressures. These different conditions create similar results, we believe, because they generate threat for the person involved. The ambiguity makes it unclear what path he should follow in meeting his needs. The excessive pressure restricts his freedom so that it is difficult to meet certain needs,
or places requirements on him that he is not sure he can fulfill.

One additional set of results fits this interpretation. An unpleasant affective state may arise where the situation is too closely structured. Where every detail of a person's action is prescribed by his peers or superiors, he may feel uneasy because he cannot be master of his own fate. Neel (1954, 1955), for example, reports feelings of nervousness among workers who are not allowed to participate in planning their work and who say that their superiors check on them too closely and decide too many things. Mann and Hoffman (1956) note greater tension among workers who have to rely excessively upon other men for advice about the problems they face on the job. Workers report more uneasiness when their superiors stand close by them than when their supervisors do not stand close by (Ross & Zander, 1957). Cohen (1959) observes that subjects with low self esteem, compared to those with high self esteem, are more anxious when faced with a very clear task and very clear instructions--because, apparently, they have only themselves to blame for any inadequacy in their performances.

When persons are exposed to strong pressures, their co-workers may provide support for them which allays their anxiety by facilitating them in their mastery over their environment. S. Seashore (1954, 1955) supports this assertion with data from an industrial setting, showing that the greater the cohesiveness of the work group, the less the nervousness the worker experiences on a demanding job. The Air Force study, mentioned above, reports that participants who rated their crews as highly attractive were less disturbed by the events encountered on the trek than those who were less attracted to their crews (Zander, Thomas, & Natsoulas, 1957).
Findings presented in this section indicate that personality or environmental variables considered separately each provide a partial understanding of determinants of unpleasant affective states. We cannot infer the existence of threat from knowledge of environmental conditions by themselves, since we have seen that persons with low self esteem or with low ego strength are more threatened by conditions around them than are those who have high self esteem or high ego strength. Similarly, persons who are less secure see more threat in their workplace than those who are secure (Zander & Jackson, 1958). Personality variables alone are not sufficient for our purpose since, in studies where situational and personality variables were both employed, the personality variables often had significant effects only when situational determinants were in their weakest degree, and few effects where environmental conditions were strong (Cohen, 1959; Thomas, 1956; Stotland et al, 1957; Thomas, Zander & Stotland, 1957). Higher ego strength, for example, was associated with significantly greater control of tension than lower ego strength where pressures on persons were weak, but not where pressures were strong. High self esteem, to cite another instance, generated more poise and self confidence in members than did low self esteem when a group's requirements on participants were difficult, but not when the group's requirements were easy.

**Pleasant Affective States**

Attention turns now to the positive end of the affect continuum. In this regard, perhaps the simplest indicator is the degree of satisfaction a person expresses about his environment, assuming that this expression is not based upon a distorted perception of his surroundings. In general, satisfaction is a resultant of a set of influences including the individual's
freedom to adapt, his perception of the probable consequences from his adaptive actions and the possibilities of achieving his aspirations. Satisfaction is then a function of the "goodness of fit" between a person with given needs and a given set of properties in his situation.

Most of the data to be reported in this section concern sources of satisfaction in an industrial situation. The environmental determinants of job satisfaction, however, must be accepted with one qualification. Most of the studies had to presume some consistency of the needs and values among the workers which may not always have been present. Indeed, there is evidence among these investigations that such personal characteristics as status, sex, age, tenure, personality, or skill of the respondents are associated with differences in satisfaction. For the sake of simplicity, we temporarily ignore these qualifiers and first review environmental conditions which have by and large been found to be associated with worker satisfaction. We then observe results of studies in which the effects of personality as well as environment have been examined in respect to job satisfaction.

Studies of work satisfaction in the Institute have dealt with reactions to specific social objects or events: the intrinsic characteristics of the job, the supervisor, the company, or mobility. Often the data from several of these object-specific satisfactions were combined into an index describing overall satisfaction with the working environment. The following studies report conditions when satisfaction with global aspects of the work situation are greater:

1. When a job allows workers to use whatever abilities they have to the fullest degree and when it allows them to use their best abilities (Hoffman & Mann, 1956);
2. When a supervisor takes a personal interest in employees and their progress, "understands his employees as human beings," or is "socially close" to employees (Mann & Pelz, 1948; Pelz, 1951a, 1951b; Katz, 1949);

3. When a worker has a task that is clear for him and when his supervisor gives clear instructions (Cohen, 1959; Staff of Research Center for Group Dynamics, 1958); when a supervisor receives adequate information from his subordinates as well as from his superiors (Staff of Research Center for Group Dynamics, 1958);

4. When a worker receives relatively higher pay for his grade of work and perceives that he is given recognition for doing well (Mann & Pelz, 1948; Katz, 1949);

5. When a worker feels that his superior or peers will support his decisions or his complaints (Mann & Pelz, 1948; Pelz, 1951a; Staff of Research Center for Group Dynamics, 1958);

6. When a worker has a higher status position in his organization (Mann & Pelz, 1948; Morse, 1953). That higher status is an important determinant of greater satisfaction has been shown by comparing the amount of satisfaction among persons while they had lower status jobs with the amount they had after they were promoted to higher positions (Lieberman, 1954, 1956). Even in laboratory groups (known to have a brief duration by their members) persons with higher status jobs are more satisfied with their positions and their groups than those in lower status positions (Kelley, 1950; Zander, Wolfe, & Curtis, 1957; Zander & Cohen, 1955; Thibaut, 1949, 1950; Trow, 1955). Mann (1953), however, suggests that status cannot confidently be viewed as a source of satisfaction without giving consideration to the worker's level of aspiration for an increase in status. A
higher status worker whose aspirations exceed his achievements may report less satisfaction than a lower status worker whose present status is commensurate with his lower aspirations.

Gurin, Veroff, & Feld (1959) report that higher status persons have higher satisfaction, but they also report more "problems" on their jobs, than do persons with lower status. Both well educated and higher (occupational) status groups, he found, express greater ego involvement in their jobs. They tend to emphasize problems in such realms as responsibility, competence, and interpersonal relations rather than in their reactions to such characteristics of the job as wages, security and working conditions. Their involvement, although it leads to higher satisfaction in higher status positions, also generates high aspirations within which problems are experienced.

7. His satisfaction is greater when a worker has some share in the process of making decisions that will influence his work, or when he has freedom and autonomy on the job (Morse, 1953; Pelz, 1951b; Morse & Reimer, 1956; Vroom, 1958a; Trow, 1955; Staff of Research Center for Group Dynamics, 1958).

Morse (1953), however, notes that where a supervisor does not check too closely on the worker and delegates authority to him, the satisfaction of the worker is increased, providing the supervisor has sufficient influence over his own superior to advance the worker's interests. On the other hand, if the supervisor has little power over his own supervisor, his employees have their aspirations raised by this form of supervision considerably beyond what can be provided for them. Consequently the worker is dissatisfied.
The personality of the worker also determines the amount of satisfaction he derives from an opportunity to participate in making decisions or from being given autonomy on the job. Some types of persons apparently find autonomous conditions satisfying while others find them threatening—and prefer that persons other than themselves make the decisions. Vroom (1958a), to illustrate, observed that in a large sample of workers, the correlation between satisfaction and participation in decision making was positive. Significant differences were found by him, however, between the magnitude of the correlations for different types of persons. The highest correlations between opportunity for decision making and satisfaction occurred among those workers with the highest needs to be independent and with the fewest tendencies to be authoritarian. As another example, this time in a laboratory experiment, the satisfaction of persons in autonomous conditions, compared to conditions in which they were dependent, was significantly greater among individuals who had a strong need for autonomy but was not significantly greater among persons who had a low need for autonomy (Trow, 1955). These last results are similar to ones reported by Morse (1953): persons who wanted to make decisions were more satisfied with their jobs when they had an opportunity to do so, but those who did not want to participate in the decision making process were not more satisfied with their jobs when they were asked to do so.

Finally, Tannenbaum and Allport (1956) tested the hypothesis that satisfaction with the workplace is greater where personality and environment fit more closely. They studied workers' reactions to two types of supervisory styles: hierarchical and autonomous (described more fully later). Before these supervisory styles were introduced into the organization, each worker was rated on a set of traits. Independent ratings were made...
estimating the extent to which the possessor of each trait would be suited or unsuited to the two supervisory patterns. On the basis of these two sets of ratings a "suitability" score was assigned each worker in order to predict her satisfaction with the program in which she was placed. These suitability scores were found to be positively correlated with the amount of satisfaction the workers reported a year later.

Is there a common denominator among these determinants of feelings of satisfaction? One may be stated in very general terms. It is the potentiality for a worker to be able to control his own fate and to predict accurately the probability of favorable consequences for his efforts. His satisfaction appears to be greater where the characteristics of his social environment, or his position in that environment, promise a good probability that he will be able to meet his needs by successfully coping with his environment. We have already seen that conditions which restrict opportunities for such independent control may result in a variety of unpleasant affective states.

Contact with Reality

When a worker's perception of his environment has little correspondence with the objective character of his surroundings, two distinct classes of variables may be responsible. He may either be receiving inadequate information about his situation or distorting the information he receives. Since these two sources of lack of contact with reality are conceptually different, they are discussed separately, although, as we shall see, they cannot always be separated in fact.
Perceptual Distortion

Jahoda takes care to point out that "correctness of perception cannot mean that there is one and only one right way of looking at the world around us...whatever the individual's way of perceiving the world, there must be some objective cues which fit the resulting percept. This is what accuracy of correctness means when one speaks of mentally healthy perception.... The mentally healthy person will test reality for its degree of correspondence with his wishes or fears." (p. 51, 1958)

The healthy person seeks evidence in his environment, as stimulated by his wishes or fears, and accepts this evidence even if it goes against his wishes. The unhealthy person does not seek evidence and rejects what is presented to him, if it does not suit him. Under appropriate social conditions, persons apparently become less concerned with testing the correspondence of evidence with their wishes and fears and instead see in their environments what they want to see. For example:

1. Boys were quizzed by a three-man board in order to judge the boys' fitness for a valued reward. Although all board members were equal in power, the boys perceived the one who was most approving of them as most powerful and the one who was least approving as least powerful. Further, where all board members were equal in their approving behaviors, the boys perceived those who were most powerful as most approving and those who were least powerful as least approving (A. Pepitone, 1949, 1950).

2. Workers, compared to foremen, formed different impressions of the characters in a brief film showing an interview between a superior and a subordinate (Emery, 1948).
3. Professional persons who had a strong liking for certain colleagues with whom they disagreed on an important issue were more reluctant to perceive any disagreement between themselves and others than were persons who disliked the others with whom they disagreed (Mellinger, 1954, 1955).

In the first of these examples the yearning for the reward caused the boys to perceive the environment in a way that was most facilitative to their wishes, the greatest distortion occurring among subjects who valued the reward most highly. In the second example persons tended to distort in order to make their perceptions consistent with opinions they already held about supervisors and workers. In the last example, it appears that the maintenance of an established relationship was more important to the person than the maintenance of accurate perceptions, where a retention of his former belief might threaten the relationship.

Further evidence concerning the effects of attraction on perception has been provided by Vroom (1958b). He reports that persons in an industrial setting tend to perceive their own attitudes and opinions in persons they like and to deny the presence of the same characteristics in persons they dislike. This relationship was obtained when the amount of actual similarity between perceiver and perceived was held constant. The relationship was stronger for those characteristics which were most central in the self-concept of the perceiver.

A given social position often generates desires to maintain or to change that position. It is commonly found, for example, that persons prefer higher position in an organization to lower ones or prefer positions in which they are well accepted as members to those in which they are marginal members. Such socially generated needs to obtain and maintain a preferred
position may constitute a source of perceptual distortion. For instance, in a study of discussion groups attended by persons with widely separated positions in hierarchical organizations, lower status persons misperceived how much they were liked by superiors, more than higher status persons misperceived how much they were liked by lower status persons. Presumably the lower level members had a stronger need to be liked than did the superiors (Hurwitz, Zander, & Hymovitch, 1953). Among members of closely cooperating professions, those who were higher in prestige within their own profession had different attitudes toward members of other professions than did those who were low in prestige in their own profession. The amount of power, knowledge, or other comparative attributes of these professionals also had effects upon what they wanted to perceive in others—and they saw what they wanted to see in them (Zander, Cohen, & Stotland, 1957).

Unaccepted persons on the margin of a group are prone to see in the group whatever they feel will strengthen or improve their relations with the members, especially if they are strongly attracted to group membership. When experimental subjects were asked to make judgments about ambiguous materials, those who were marginal members of the experimental groups were more likely to distort their private opinions to conform with those of the group than were subjects who were accepted by the group (Rasmussen & Zander, 1954; Raven, 1953a, 1953b, 1959; Jackson & Saltzstein, 1958).

The individual's perception, or his private opinion, of course, may not always correspond to what he publicly maintains his perception or opinion to be. While his percept may be undistorted, he may modify his report of this percept to correspond to a group norm. To the degree that this false reporting is a conscious protective maneuver in order to avoid ridicule, let us say, it is misleading to speak of the individual as distorting his
perception of the situation since he is still testing reality and still "accepting" evidence which is contrary to his wishes, despite his protective statement. Yet there is doubtless some point at which a person may come to accept privately his public reports. When laboratory subjects were first made to write what they did not believe, Raven (1959) observed that they later believed what they had found themselves saying, even though these statements were contrary to their earlier perceptions. There is, however, little evidence or explanation of how these reported distortions become permanently established and privately accepted.

**Information and Social Position**

In many of the preceding examples the presence of distortion could be inferred from existence of "unrealistic" individual responses to a standard stimulus. In studying the effects of social position upon perception in a real-life setting, however, it often becomes difficult to specify what constitutes distortion. A given position in an organization may not only demand that a person view his surroundings in a particular way; it may also provide the individual with limited or incorrect information about these surroundings. Can the person who forms an inaccurate view of the objective environment, on the basis of inadequate information, be regarded as distorting reality?

Kahn (1958) reports that occupants of the foreman's role and occupants of the worker's role are likely to give different estimates of how foremen and workers would rank the importance of job characteristics (i.e., wages, steady work, social benefits, and interpersonal relations). From these data, however, we cannot infer whether the foreman and workers were distorting unless we know what information they were receiving and unless we
know whether the information was similar or different for persons in the different positions.

From the results of a study by Lieberman (1956) it is possible to infer with some confidence that role occupants were actually distorting their perceptions as a result of their different positions. In this case, workers' attitudes toward the company changed when they were promoted to foremen or elected as union stewards. These attitudes again changed when foremen and stewards returned to the role of workman. After these changes in role, we can assume that there were concomitant distortions in perception, since the persons involved had known the situations for both workers and foremen or for both stewards and workers. With the broader perspective of having received the information characteristic of both roles, these differential perceptions can be attributed to perceptual distortion rather than to failure to receive complete information.

What characteristics of a position in an organization determine whether the occupant of it receives accurate information about his surroundings? Two properties of a position seem relevant here: functional distance and status. In a study of a housing project, Festinger, Schachter, & Back (1950) found that residents who had a greater physical distance from others or were so located that interaction with others was unlikely, typically had opinions which differed from those held by most residents of the project.

Superiors in a hierarchy are unlikely to receive full information and especially unlikely to hear that which is derogatory or threatening to them. Thus, a high status member of an organization may often be out of contact with the realities among those on a lower strata because he receives
screened and selected pieces of information, chosen for his ears alone. (Festinger & Thibaut, 1951; Kelley, 1950; Zander, Cohen, & Stotland, 1957; Hurwitz, Zander, & Hymovitch, 1953).

Finally, the amount and variety of communication a person receives at a given location in an organization may affect the degree of differentiation he has about the organization. Zajonc (1959), for example, asked workers in both line and staff hierarchies to describe their company. The conceptions of the organization held by those near the top of both hierarchies were more highly differentiated than those held by persons at lower levels. In addition, the conceptions of those at the higher levels were more highly organized around central themes or ideas than were the conceptions of members at lower levels.

The personal and situational determinants of lack of contact with reality may be summarized as falling within at least three major categories. (a) A person may have certain needs when he enters an organization and may perceive others or establish relations with others on the basis of these needs rather than on the basis of objective reality. (b) A person may fail to test reality because of certain needs, generated by conditions in the organization itself, to obtain and maintain given relationships with others. (c) A person may have inadequate or screened information made available to him because of his position and what his position means to others.
Attitude Toward the Self

The amount of value a person places upon relevant aspects of himself is a familiar concept in the literature of mental health. The notion is implicit in many terms such as self esteem, feelings of inferiority, inferiority complex, manic-depressive states, and so on. The single term self esteem is used here to refer to these phenomena of self evaluation. Most of the Institute's research results on attitudes toward self are concerned with sources of variation in self esteem. This section, therefore, is primarily concerned with self esteem, with a minor emphasis on other aspects of the self.

Self Esteem

A person usually evaluates himself in terms of how close he is to some goal line he has set. If he is short of that goal line, he has feelings of failure, and if he exceeds the goal line, he has feelings of success. Most people tend to raise their levels of aspiration so that these levels are a little above their present performances. Thus we find, in our Western culture at least, a widespread desire for persons to improve themselves and a widespread but mild dissatisfaction with themselves.

The members of an individual's social environment may have important consequences for his feelings of success or failure because they influence the level at which he sets his goal line, often without consideration of his ability to reach that goal. In an industrial organization goals are quite commonly set for members. The goals are made known to them through such practices as piece rates, production goals, and job descriptions. The organization provides information concerning the degree that workers have
achieved these goals by giving them merit appraisal ratings, quality control reports, production indexes or other types of data.

Findings from studies done in the Institute for Social Research indicate that a person will evaluate himself in terms of the degree that he has reached the goals set for him by the organization, to the extent that these goals are important for him. Furthermore, a person who has failed a task to the same degree as another person will rate himself lower if the goal set for him by the group is more important to him than it is for the other person. Several studies have dealt with the relations between the conditions surrounding a failure and the resulting self esteem:

1. Failure on a task that was highly relevant to the group's future achievement generated lower self evaluation than failure on a task that was not relevant to the group's achievement (Stotland et al., 1957).

2. Failure on an assignment where the poor performance was known by a "judge" led to lower self evaluation than a failure in complete privacy (Stotland & Zander, 1958).

3. Failure where the judge was an expert generated lower self evaluation than where the judge was not an expert. This relationship between failure and expertness of the observer was stronger to the extent that the person had a desire to do well (Stotland & Zander, 1958).

4. Failure where superiors made demands seen as legitimate stimulated lower self evaluation than where the superiors were seen as non-legitimate (Zander, Thomas, & Natsoulas, 1957).

5. Failure in a group that was highly attractive to the members generated lower self evaluation than where the group was less attractive (Rasmussen & Zander, 1954).
6. Failure where persons set their own goals closer to the one advocated by their group generated lower self evaluation than failure where the persons' goals deviated from that set by the group (Stotland et al., 1957; Zander, Thomas, & Natsoulas, 1957).

Sources of influence in the environment, therefore, can establish goals which the person accepts as valid criteria for judging his performance, and the stronger these goals are imposed the more he is likely to use these as criteria for judging himself.

Personal characteristics of persons placed in situations which tend to affect self esteem, it should be noted, modify the effect of the environment on the person. Stotland et al. (1957), for example, found that subjects with high levels of self esteem tended to evaluate a failing performance more favorably than did subjects with low self esteem. That the defenses used by a person after an experience of failure determine to some degree the resulting self esteem has been suggested by Cohen (1954). He observed that individuals with high self esteem tend to use avoidance, rationalization or intellectualization as defenses rather than regression.

A person who performs a task well, in contrast to a poor performer, apparently tends to ignore such matters as the relevance of the task, the attractiveness of the group, or the legitimacy of the goal setters, when evaluating himself. He evaluates his performance highly regardless of variations in these conditions. Perhaps a successful performance makes a person less dependent on the opinion of those around him, because his success provides him enough security to rate himself on his own terms rather than on the terms set up by others (Stotland et al., 1957; Jackson & Saltzstein, 1958; Zander & Haveline, 1959).
Quite a different set of processes have been examined in the Institute as determiners of low or high self esteem. In these studies it was assumed that persons may become identified with others, and as a result of this identification, they come to see themselves as similar to their model. Where the model has poor qualities subjects tend to see themselves as inept and where the model has superior qualities subjects perceive themselves as superior. These processes have been shown to work as a result of identification with both individuals and groups (Stotland, Natsoulas, Zander, Burnstein, & Wolfe, 1959).

Finally, these results raise an interesting question concerning the development of the self concept. Does low evaluation in one aspect of a person mean that he judges all of himself as incompetent? In two investigations it has been found that a person's self evaluation in experimental task A will affect his self evaluation in tasks B and C to the extent that B and C are similar to A (Stotland & Zander, 1958; Stotland, Wolfe, et al., 1959). Persons who perceived low interdependence among the attributes in their concepts of themselves, however, were better able than those who perceived high interdependence in these attributes, to keep a low evaluation of one attribute of their self concept from spreading to other attributes of the self concept (Stotland, Thomas, Thorley, & Zander, 1955). Jackson & Saltzstein (1958) report that subjects who received low performance ratings on a task early in an experiment, evaluated themselves as doing poorly in tasks with different contents at a point later in the experiment. In quite a different approach to the "spread" of self esteem in a person, Cohen (1954) asked a sample of fraternity members to rank five needs according to the degree they felt these needs were important for them. The amount that
members felt they were capable of satisfying the need they ranked first accounted for much of variance in their self esteem; inability to satisfy a lower ranked need had less effect upon self esteem. Members who ranked affiliation needs as most important—needs that could be easily met in the fraternity—had the highest self esteem.

Characteristics of persons with different degrees of self esteem were studied by Gurin, Veroff, & Feld (1959). Respondents in a national sample were asked to describe their own weak points and strong points. There was no difference between persons high and low in self esteem in the kinds of strong points they saw in themselves. Persons high in self esteem, however, most often regarded their shortcomings as related to achievement, and respondents who were coded as having negative or ambivalent images of themselves were found more often to emphasize shortcomings dealing with interpersonal and personal adjustment.

Other Aspects of the Self

Various other attributes of the self have been employed in studies at the Institute although no systematic work has been done on them. These are briefly noted.

In studies dealing with the unity of the self, C. Seashore (1958) found that delinquent children were more likely to perceive disparity in the evaluations others made of them than did non-delinquents. Luszki (1951) observed that subjects with high scores on a measure of psychological adjustment showed more congruence between the way they saw themselves and the way they thought they were seen by others (and showed less variability in the way they thought they were seen by their associates) than did persons with low scores on psychological adjustment.
Perceived personal competence was studied by Douvan and Walter (1956). They found that persons who had a lower regard for their own competence, compared to those who regarded themselves as competent, viewed the world as oppressive and uncontrollable, preferred myth to reality, attributed success or failure to chance, had a low estimate of their effectiveness in public affairs, manifested little curiosity about new stimuli, and took a less active approach to the environment.

The meaning of work to the self image was investigated by Morse & Weiss (1955). They reported that 80 per cent of a national sample said they would keep on working even if they had enough money to stop work. For the typical man in a middle class occupation, they found, a job provided a purposeful conception for the self, a sense of accomplishment, and a means of self expression. For the typical working class man, they noted, having a job was a source of relief from boredom and from "having nothing to do."

The concept of ego strength, prevalent in psychoanalytic approaches to mental health, has also been used in research at the Institute. In laboratory and field studies, Thomas, Zander, & Stotland (1957) have observed that persons high in ego strength are better able to control their tensions and better able to direct their actions into channels most appropriate for goal accomplishment, than are persons low in ego strength.

Motivation to Grow and to Use Abilities

The capacity of a person to be interested in a richer life and to make the fullest use of his abilities has been advocated by many as a characteristic of the mentally healthy person. Maslow distinguishes between motives which are intended to relieve tension, but do not contribute to
positive mental health, and motives which are intended to help the person grow and which do facilitate mental health. Growth motivation, he says, leads beyond (negative) tension reduction to self actualization of potential capacities and talents, to devotion to a mission in life or a vocation, to activity rather than to rest or resignation. A self-actualizing person experiences the maintenance of tensions in these areas as pleasurable; he cannot be understood as being motivated here by the need for tension reduction. The greater the amount of growth motivation, the more healthy is the person (Maslow, 1955).

Specifying the conditions which determine growth is closely related to specifying the conditions which determine conformity. The contention is widely made that life in an organization limits a member's autonomy so that he cannot effectively grow, but instead must do what is required of him by the organization. The added implication is also usually present that what a person is required to do for the organization does not lead to the fullest development of himself. There can be no doubt that an organization does not always inhibit the growth of a member. Indeed, one can readily find that many organizations make demands which are actually stimulating—often too much so.

Workers who are given tasks which are highly specialized and strongly controlled are probably limited to the use of superficial abilities, have little stimulation for the growth of their abilities, and perhaps develop lack of confidence in themselves and in their ability to grow. Work with much variety, or tasks requiring decisions, are probably more provocative of growth in a worker than jobs demanding repetition and little decision making. As a case in point, Mann & Hoffman (1956) report that workers felt
there was a greater chance to use their best abilities when they had been moved to new jobs which required more skill, provided more variety through a job rotation system, and offered more challenges to them. Mann (1953) notes that the relationship between the skill level of a job and the perception of a chance to use abilities holds for both blue-collar and white-collar workers.

If we assume that membership per se in an organization is not enough to induce conformity, we must first examine the conditions in a group that generate variations in conformity. We can then inquire into the relationship between conformity and mental health, particularly the relationship between the form of control exercised by supervisors and the resultant utilization of abilities.

**Conformity in Beliefs or Behavior**

In the work of the Institute it has been assumed that groups exert pressures for uniformity upon their members in order to implement procedural and policy decisions necessary for the movement of the group toward its goals or in order for the group to maintain itself. The member, for his part, becomes susceptible to and even dependent upon these pressures because of his need to find social support for his opinions.

Given this tendency for groups to press members toward uniformity and the need for members to have a basis in reality (albeit a social reality) for their opinions, the following generalizations can be made concerning the sources of conformity in a group and the potential sources of low self actualization.
1. The power of a group to generate conformity among its members is greater the more the members are attracted to it (Festinger, Schachter, & Back, 1950; Festinger et al., 1952).

2. The relationship between attraction of the group and power of the group in determining conformity holds regardless of whether it is based on personal attraction between members, on effective performance of the task, or on the prestige obtainable from membership (Back, 1951).

3. The power of a group is greater the more that the task on which they require conformity is relevant to the group (Schachter, 1951).

4. The power of a group to require conformity of its members is greater if the group is more important compared to other groups (Festinger, 1950).

5. The power of a group to influence a change in opinion is reduced to the extent that the opinions involved are anchored in other group memberships (Festinger, Schachter, & Back, 1950; Festinger, 1950; Gerard, 1954).

6. The power of a group is greater over persons who are not well accepted by the group than over those who are accepted (Rasmussen & Zander, 1954; Jackson & Saltzstein, 1958).

An organization's intolerance of differences among its members has been attributed by Cartwright (1958) to five classes of conditions: (a) where the organization is under threat from the outside, (b) where members are unsure of themselves, (c) where the continuance of membership is uncertain, (d) where the members are homogeneous with respect to background and training, and (e) where members do not also belong to other organizations.

In a study of union locals, Tannenbaum & Kahn (1958) examined some of the apparent causes for conformity among members. They found three conditions
accompanying high conformity. These were the amount of formal and informal control over union rules and policies, the amount of external conflict faced by the union, and the amount of loyalty members held for the union. The behaviors and attitudes among active union members were more similar and more closely related to the norms of the locals than among less active members.

Given these determinants of organizational conformity, what is their relationship to mental health? This question is difficult to answer with confidence since the answer depends upon the character of the particular norms to which conformity pressures are directed. Depending upon the content of the norms, the effects of conformity upon mental health may be either positive or negative. Conformity may be associated with restrictions upon the use of abilities when the norm concerns routinized, uninteresting tasks, which engage only limited abilities; but this fact does not permit us to equate conformity with restrictions upon use of abilities or upon self actualization. Similarly, conformity to a perceptual norm or to a standard belief may result in a loss of contact with reality by a person, but only when this norm is out of contact with the objective situation. Where the norm and objective reality are congruent, conformity increases the individual's contact with reality. Conformity to a norm may allay unpleasant affective states by providing structure in otherwise ambiguous situations. As we noted earlier, however, excessive amounts of structure may actually increase the amount of unpleasant affect. Pressures by the group upon the member to set a level of aspiration may result either in a raising or a lowering of an individual's self esteem, depending upon the specific aspiration level set for him by the group and the person's ability to accomplish as well as he is expected to do.
Supervision and Autonomy

The degree that control is centralized in an organization has obvious ramifications upon the amount of conformity demanded of members and affects, in turn, the amount of self actualization possible for persons. One large scale field-experiment in supervisory practices had straightforward effects upon self actualization.

The subjects in the experiment were 200 women office workers. They were divided into two groups with contrasting supervisory styles in each group. In the autonomous (A) program, the amount of control and participation in decision making of workers was increased and that of supervisors was decreased. In the hierarchical (H) program, the amount of control and participation by subordinates in decision making was decreased and that of the upper levels was increased (Morse & Reimer, 1956; Tannenbaum, 1957).

A measurement was made of the participants' subjective beliefs concerning the amount of opportunity available to them for self actualization. This measurement was an index combining the following items: challenge of job, opportunity to learn on the job, opportunity to learn things in preparation for advancement, opportunity to try out one's ideas, and the extent to which the job gives the worker a chance to do the things she does best. Data for this index and other related questions were obtained prior to the installation of these supervisory methods and after they had been in operation for a year.

Among the workers under the A program there was a significant increase in the amount of perceived probability for self actualization and among the employees under the H program there was a significant decrease in the amount of perceived probability for self actualization.
In addition, the following items, which may be taken as indicators of the degree to which self actualization can develop, shifted in a negative direction in the H program: understanding others' viewpoints and feelings, independence of control figures, expressing one's own judgment, basing actions on one's own judgments rather than on the judgments of others, and doing one's own thinking. Under the A program the following items showed greater changes in the direction indicative of greater possibility of self actualization: maintenance of separation between roles, and submission to persons in positions of authority.

In a study of twenty research laboratories, Baumgartel (1955) found additional evidence that supervisory behavior may be associated with aspects of self actualization. Supervisors skilled in research who held the laboratory's goals as important, compared to supervisors without these qualities, stimulated greater freedom for subordinates to use their abilities and greater originality in the use of them. Workers reported a greater sense of progress (indicated by the extent to which they felt their jobs permitted them to realize their abilities, to be original, and to contribute to basic science) in laboratories with "participatory" rather than directive leadership. Freedom from direction, however, cannot alone be a necessary and sufficient condition for self actualization. This is demonstrated in an additional finding of Baumgartel's. The sense of progress of the scientists was less in a laissez faire pattern than in the more participatory one.

Aggression

The use of aggression is an important criterion of mental health. Some theories emphasize the significance of a person's inability to control his hostile impulses, other theories concentrate upon the inability of a person
to release his hostility, and still others speak of the wise use of aggression. The World Health Organization, as an example of one point of view, sanctions this statement: "The healthy personality has the ability to be reasonably aggressive when the situation demands. But he is free from any inner necessity to dominate other people, to lord it over them, or to push them around" (Washington State Conference, 1951). Conrad (1952) stipulates that an individual is in good mental health to the degree he avoids the development of negative affective relationships or of hindering the welfare of others. Jahoda offers quotations from Sullivan, Horney, Dicks, Fromm, and May to show that satisfying and close interpersonal relationships are an important criterion of mental health. Clearly excessive or uncontrolled hostility may prevent these healthful interpersonal relationships from developing.

The properties of a social situation may be such that they foster the development of hostility or aggression. It has been found in the Institute's studies that hostility in interpersonal relationships is greater:

--in competitive groups than in cooperative ones (Deutsch, 1948, 1949);
--in groups with high interdependence than in groups with low interdependence (Thomas, 1956);
--when a person finds it difficult to conform to the norms of those around him than when he finds it easy to do so (Zajonc, 1952);
--in a group with an unclear goal and an unclear path to the goal than in a group with a clear goal and path (Raven & Rietema, 1957).

Superiors generate hostility among subordinates when they frustrate them in the following ways: block them in their creative efforts (Stotland, 1953, 1954, 1959); set tasks for them which are vague and difficult to
accomplish (Cohen, 1959); and when they threaten to punish and do punish inadequate performances (Zipf, 1958; French, Zipf, & Sampson, 1959).

The overt expression of hostility toward a superior is more likely if the subordinates provide support for one another (Stotland, 1953, 1954, 1959; Zander, Cohen, & Stotland, 1957) and if the subordinate perceives that the superior is acting in manner that is not legitimate (Zander & Havelin, 1959). Acts of aggression were reported by Coch & French (1948) as being more numerous in cohesive groups with social norms that permit aggression than in groups with norms that disallow aggression.

Would the elimination of conditions such as those mentioned in the last few paragraphs generate satisfying interpersonal relationships? In the earlier discussion of satisfaction, and in the discussion of interpersonal attraction to follow, it should be clear that the determinants of satisfying and adequate interpersonal relations are many. The absence of these conditions may well reduce hostility but the elimination of them is not by itself a sufficient condition for satisfactory interpersonal relations.

Maintenance of Stable Interpersonal Relations

One of the signs of mental health on which psychodiagnosticians and psychotherapists place emphasis is the ability of a person to stay in one job or to stay in school. The worker who jumps from place to place is suspected of having problems or worries and the boy who skips or leaves school is seen as a youngster who is "having difficulties." What conditions determine whether these individuals remain attracted to their membership groups and maintain stable relationships with them?
Attraction to membership in an organization is the resultant of all the forces on a person to remain as a member. Evidence concerning the amount of such attraction has been obtained by getting subjective comments from persons describing how much they are attracted to membership, by examining the causes of turnover in membership and by studying the causes of absence.

Subjective Ratings of Attraction

In a number of studies attraction to a group was measured by asking persons how much they desired to remain as members. The responses were found to be associated with conditions which may be taken as evocative of adequate interpersonal relationships. A considerable array of literature can be condensed into three not entirely independent statements.

1. A person is more likely to express a desire for continued membership in a group if he has successful experiences in it. Examples:
   --the group is successful in performing a group task (Stotland, Wolfe, et al., 1959);
   --the member is evaluated positively by others in the group (Jackson, 1953);
   --the member believes that his task is more important to the group than are the tasks of other members (E. Pepitone, 1952).

2. A person is more likely to be attracted to the group if it has conditions which offer a high potentiality for allowing him to meet his needs. Examples:
   --other members are helpful rather than hindering or depriving persons (Deutsch, 1948, 1949; Thomas, 1956);
   --supervisors are rewarding rather than coercing (Zipf, 1958; Raven & French, 1958a) and their power is legitimately based (Raven & French, 1958a, 1958b);
--superiors are sincere in considering the wishes of subordinates
(Zander & Gyr, 1955);
--other members are seen as having interests like his own (Libo, 1953;
Stotland, Wolfe et al., 1959).

3. A member is more attracted to his group if he is in a position
within it to have some control over his own fate. Examples:
--he has a high status with no possibility of demotion or a low status
with a strong possibility of promotion (Kelley, 1950);
--the organization makes it possible for him to perform in a role he
values highly (Davis, 1956).

Turnover

In some studies, attraction to the organization has been observed by
noting the conditions that caused persons to leave the organization. All
in all it appears that states of affairs which frustrate specific and
identified needs generate greater departure from an organization than
situations which satisfy these needs.

In a controlled experiment, Libo (1953) asked persons what kinds of
qualities they would want in a group at the time he recruited them for
participation in his study. In the experiment he told the members in half
of the groups that they were in situations that met their personal require-
ments very well and told members in the rest of the groups that they were
in situations that unfortunately did not have the qualities they had earlier
preferred. At the end of the first discussion meeting, turnover and
continuance of membership were determined by allowing members privately,
each in their turn, to walk down the hall and to select one of two doors
to pass through. One door led to a room for continued membership and the
other led to an exit from the building. Persons in groups which were said to fulfill the needs expressed by participants were less likely to depart than persons who were in groups said not to fulfill the demands they had of a group.

The importance of need satisfaction in preventing turnover was shown by Ross & Zander (1957). They measured the strength and satisfaction of personal needs felt by workers on their jobs. After a number of months the satisfaction scores of those who resigned were compared with the satisfaction scores of matched workers who had remained. Resignees were found to have had lower satisfaction at the time of the earlier measurements. It is noteworthy that the amount of anxiety felt on the job and the amount of self esteem of these workers, also measured at the first time, were in general not significantly related to the amount of turnover.

In other organizational studies, Coch and French (1948) observed that more persons resigned when they were unable to meet the demands of their jobs; and Dent (1957) reported a tendency for employee replacement rates to be negatively correlated with the perceived influence of the employee.

Absence

Attendance is an indirect indicator of the attractiveness of an organization. Absences were least among white-collar men in one company when they perceived opportunities for advancement, felt they were given recognition for their work, and were satisfied with wages, supervision, and the company as a whole. For blue-collar men, low absence rates tended to be associated more with work-group characteristics such as feelings of acceptance by the crew, team spirit, and favorable evaluations of the crew's performances (Metzner & Mann, 1953).
Evidence also indicates, however, that absence is not only an indicator of attractiveness. It may instead be a sign that the worker feels sufficiently secure on the job to stay away from work. Jackson (1958) observed that girls who worked in a highly skilled position, who were positive about their jobs, who were good performers, and who were psychologically secure persons were more likely to be absent from their jobs than workers who did not have these attributes.

Concluding Comments

This survey of research results is a lacework, necessarily incomplete. The self imposed requirement that studies from the Institute for Social Research be the only ones included made it impossible to provide a full story on any topic. Findings from research in the Institute, it may be taken for granted, are only a small part of what could be presented had we been able to fill holes in the lacework by citing results from studies done elsewhere.

Incomplete as this summary may be, it nevertheless emphasizes the importance of certain social conditions as determinants of behavior relevant to mental health. Among them are these:

1. **Ambiguity in interpersonal relations and in the requirements of a situation.** Where persons are uncertain as to what is wanted of them, or what they can do in order to meet their needs, a wide variety of behaviors ensue which appear pertinent to psychological health. Studies are needed which will determine the origin, nature and most likely consequences from various types of ambiguity in relations with the environment.

2. **The use of power and patterns of control.** Reactions to others' use of their social power and to different styles of supervision were frequently
noted in the preceding discussions. Clearly a host of phenomena relevant to security, satisfaction, tension, hostility, and other aspects of mental health are provoked by the requirement that persons with different degrees of social power have interpersonal relations. Current research in psychosomatic medicine suggests that established connections such as dependence, authority, responsibility, nurturance, and so on, which are prominent parts of life in a hierarchy, may be conducive to psychiatric disabilities.

3. Demands of the environment. A person's social environment may require more of him than he can provide by setting goals for him that he cannot attain, or by exerting excessive pressures upon him to perform better than he can. The conditions effecting the acceptance of these requirements and the methods of defense and evasion an individual may use under specified conditions when the demands are too strong for him is a likely area for investigation.

In many situations a major problem of adjustment arises because a person must react to different requirements at different times. Psychological and even physiological reactions which were appropriate at one moment are no longer adequate. Methods of coping with sudden or frequent changes in the environment need further study.

Other areas for investigation are suggested by the results presented in this review. Those mentioned here are among the major classes of "independent variables" which have shown frequent relationships with the various types of mental health behavior. They suffice to illustrate that the behavior of a person will be predictable to a useful degree when we are able to understand the effects of the social environment upon him.
Other questions or issues suggested by the results in this review concern the various classes of "dependent variables." Some typical examples of problems in these areas may be mentioned.

1. **Unpleasant affective states.** An adequate statement is needed of the conditions under which an individual's group can serve as a buffer against--rather than a contributor to--his experiencing unpleasant states.

   It is necessary to differentiate conditions wherein low clarity will be related to threat from those wherein low clarity may stimulate a person to utilize his creative abilities (to engage in self actualization). If we assume that individual differences in the persons involved are major determinants of the threat or growth potential seen in a given situation, what aspects of his surroundings cause what kinds of person to see unclarity as a fearsome situation rather than a challenge?

2. **Self esteem.** The notion that self esteem develops from a person's perception of a discrepancy between his current performance and his level of aspiration, leaves us with the need for information concerning the effects of external influences on the person. What sorts of goals are set for persons by relevant persons around him? What parts of the environment serve as paths or supplies so that he can reach these goals? When demands are placed upon a person which are more than he can handle, what methods of defense can a person use, and under what conditions are they effective in reducing tensions? Under what conditions will he distort the nature of his environment or his performance to maintain a pre-existing level of self esteem?

3. **Contact with reality.** A major problem underlying the discussion of contact with reality is that of differentiating between distortion which
is based upon wishes and fears from lack of contact which is the product
of incorrect information. The incorrect information, we assume, often
represents a "wrong" social reality for a person, to which he must conform
lest his interpersonal relations be damaged—to the extent that his mental
health may be impaired.

4. Satisfaction. The biggest problem here is one of conceptual
refinement. Satisfaction can mean and has meant many things.

More detailed knowledge is needed of the extent to which a change in
a limited part of the job, or a change in a some conceptually precise aspect
of the job will affect a worker's overall satisfaction level. Two approaches
seem possible. On the one hand perhaps there are sovereign conceptual
properties which can be found to generate greater or less satisfaction. On
the other hand, satisfaction may be considered to be primarily a function
of individual differences in needs so that it is wise to determine what
these central needs are. If one assumes, however, that a need is only that
which some event or object will satisfy, then the best approach lies some­
where between the two just described.

One major belief we derive from this survey of mental health research
is that progress can come as we work toward specifying the nature of causes
and the nature of effects. Modern industry is said to be a cause of many
of the modern man's mental health problems. Clearly we can learn if and
why this is true by developing a broader understanding of the parts of our
industrial organizations that should be blamed for this reputation. When
these explanations are in hand it may be possible to improve the health­
fulness of the industrial environment.
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