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THE IMAGE OF ORGANIZATION:
A CASE STUDY OF THE ROLE OF KNOWLEDGE
AND INDIVIDUAL BEHAVIOR IN A
CHANGING STATE CIVIL DEFENSE

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

by

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CHAPTER I

Introduction

The purpose of this dissertation is to study one small organization to find out why and how it worked the way it did. Two primary conclusions are reached. First, the role of the individual's knowledge in the functioning of an organization has been overlooked. Second, a great deal of the behavior observable in a small organization can be explained in terms of first, the individual's image of the situation; second, his motives; and third, the situation itself.

I studied one organization intensively over a period of time. During this time I formed an image of what the organization was and how it operated, and then I attempted to draw some generalizable conclusions from the image. These conclusions deal with relationships among the individual, group, organizational, and environmental levels of an organization. An integration sometimes attempted theoretically (e.g., March and Simon, 1958; Katz and Kahn, 1978) but rarely empirically.

Recently some writers have come to believe that how the participants enact their behaviors affects organization functioning more than had been previously recognized. Weick (1969) has taken this view to its logical extreme, stating that organizations "...create and constitute the environment to which they react; the environment is put there by the actors within the organization and by no one
else (Weick, 1969:38). What the organization is, is what people think it is."

With one exception (Bougan, Weick, and Binkhorst, 1977) Weick's ideas remain untested. This leaves several major questions unanswered, such as what factors limit the behaviors that can be enacted and, perhaps more important, what an actual organization would look like if viewed in terms of Weick's theory. Several ethnomethodological studies (Garfinkel, 1967; Henslin, 1975; Van Maanen, 1978; Van Maanen, 1979) show how individuals within organizations construct meaning sets based on their experiences. No study, to my knowledge, however, has addressed how these meaning sets fit together in an entire organization.

This study aimed at understanding a single organization as thoroughly as possible through observation and interviews and then finding a literature or theoretical orientation which could explain the events in the way they occurred.

The case study focuses on the changes that occurred when a young, energetic director was appointed to head a Civil Defense agency in the backwaters of state government. The study began as an examination of the change process itself, but the focus shifted (see Van Maanen, 1979) as I learned more of the organization over a fifteen month period. Two observations influenced the shift in focus. First, the participants were primarily oriented toward doing their jobs. Much of the sense of the organization seemed to stem from the tasks the people were performing. In this respect, it seemed to me that
the participants defined the organization in terms of their own tasks as opposed to the formal properties of the organization. Work relationships were defined in practice and the patterns of interaction depended on the patterns of mutual expectations which were formed among the participants. Second, there seemed to be an underlying pattern to the behaviors which depended on what the participants "knew" and how they organized that knowledge. The problem became one of finding a way of conceptualizing what I was observing.

The Philosophic Orientation

There are several viable ways of categorizing behavioral and social theory (Ritzer, 1975; Turner, 1978; Pinder and Moore, 1979). McLeod and Chaffee (1972) have made a useful distinction between writers concerned with social reality (e.g., Mead, 1934; Silverman, 1971) and writers concerned with social reality (e.g., Lewin, 1935; Thompson, 1967)—one term, two concepts. The first group takes the cognitive system of the individual as the unit of analysis and lets social reality refer to the person's frame of reference in a social situation.

...A vastly different conception is held by others who examine the social system as their unit of analysis and look on social reality as the actual degree of agreement or consensus among the members of that system. (McLeod and Chaffee, 1972:52).

The differences between the two groups can be demonstrated by how each would handle the concept of a "zone of indifference" (Simon, 1976). Having stated that a "zone of indifference" exists between
the superior and subordinate, Simon, who in this example is writing as a social realist (sR), goes on to examine how the "zone of indifference" affects the use of sanctions and power in superior-subordinate relations. A social (Sr) might find the concept of a "zone of indifference" equally interesting but would be more interested in what cognitive structures exist in the minds of both the superior and subordinate to say that there is something which could be labeled as a "zone of indifference" which exists between them. Seen in this light, there is no reason to suspect on an a priori basis that the two groups differ fundamentally, but rather that they focus on different aspects of the same phenomena.

The Sr Position and Organizational Theory

The Sr paradigm originated relatively recently in organizational theory and currently exists primarily as a potential. It has the potential to be a "type 3 frontier paradigm," one that deals or manages inquiry founded on a multiplicity of paradigms (Pondy and Boje, 1976). As with any paradigm which has the potential to integrate, the Sr paradigm can be applied in settings in which it is not appropriate or suffers misuse through lack of understanding in much the same way as occurred with a frequently uncritical adaptation of biologic systems theory to organizational theory (Weick, 1974; Kaufman, 1975).

Within sociology there are three primary variants of the Sr paradigm: (1) Ethnomethodology (Garfinkel, 1967), (2) Symbolic Interactionism (Blumer, 1969), and (3) The Dramaturgical School
(Goffman, 1959). While there are differences between them (see Denzin, 1969; Turner, 1978), all conceive of man as socially creating the reality that he subsequently reacts to. Each position traces its intellectual roots to phenomenology (Schutz, 1967: Schutz and Luckmann, 1973) or to the Social Behaviorism of George Herbert Mead (1934; 1964), or, most often, to a combination of the two positions.

This results in differences in form and methodology more than content. Areas in psychology which have Sr aspects are attribution theory (Kelly, 1973), social learning theory (Bandura, 1977), and ecological psychology (Wicker, 1979). While there are differences between Sr studies in psychology and sociology in both form and methodology, the findings tend to be complimentary. The discipline which is most thoroughly committed to an Sr approach is post-Chomskyan linguistics (Chomsky, 1965; Fromkin and Rodman, 1978).

Within organization theory, leaders within the Sr paradigm include Weick (1969; 1974; 1977; 1979), Pondy (Pondy and Boje, 1976), and Van Maanen (1979). While there are several works which have a primarily Sr orientation to organizations (e.g., Gouldner, 1954; Dalton, 1959; Bittner, 1965; Silverman, 1971), the current interests seem to have been imported from other disciplines, primarily sociology and anthropology.

The Sr orientation, which is adopted here, focuses on how man creates, maintains, and changes his environment. Given that the vast majority of the people who create, maintain, and change organizations are not familiar with the concepts of organizational theories, it is
interesting as well as necessary to study how individuals organize their thoughts and their behavior. The issue is not solely methodological, but is also philosophical—it concerns the way we think about organized human behavior in the first place.

### Boulding's Concept of Image

Boulding (1956) defined an image as the individual's subjective knowledge of the world. He used the term image in place of the word knowledge to highlight the subjective aspects and to avoid the connotation of truth in the word "knowledge." This conception of image provides a way of discussing the phenomena I observed in the Civil Defense because the participants in the Civil Defense were enacting behaviors based upon their view of what was going on around them and their view of their place in that process.

According to Boulding, the individual constructs his behavior from his image which is a product of his past experiences. The image, then, includes the individual's cognitive map of cause and effect relations and his self-concept (Mead, 1934) which is the individual's view of his place in that world. Boulding (1956:47-8) classified images in terms of ten dimensions: (1) spatial, (2) temporal, (3) relational, (4) personal, (5) values or ordering, (6) affectation, and (7) conscious, unconscious and subconscious, (8) certainty versus uncertainty, (9) reality versus unreality, and (10) public versus private.

These, however, are logical requisites. The form of the expression will depend on the content and organization of the image that
the individual forms which depends, in turn, on the way that the brain processes and stores information. Boulding, however, did not state how the image was internally represented.

The Structure of the Model

In his cognitive model of organizing, Weick (1969) suggests that organizations create the environment to which they subsequently respond—the enacted environment. In contrast, Colinveaux (1980) suggests that it is environmental forces which primarily dictate the form of organizational and social behavior. The resolution posed here, through the concept of the organizational image, is that the process is interactive. Each shapes the other.

Boulding (1956) in his use of the concept of image, however, did not address the underlying structure of the image, its content or the relation between the image, behavior, and the consequences of behavior. For the structure of the image, I have turned to Simon's model of information processing which focuses on the organization of memory and the resulting parameters and constraints on behavior. For the content of the image I have turned to the observations of the Civil Defense, asking what did people "know" about the organization, how did they acquire and employ that knowledge, and how did it change over time?

Simon's (1969; 1979) model, which is described in greater detail later in this chapter, describes man as essentially a cognitively simple creature responding to a complex environment (Simon, 1969). The capacity for making complex responses stems from the hierarchical
organization of memory. How an individual responds to a situation depends on how he has organized his memories of past experiences—on what symbols he uses to access information.

Concerning the organizational image, this raises two broad questions about organized behavior. First, what kinds of symbols do the participants use to access information from memory about the organization; or, more simply, in what terms did the participants in this case study understand the Civil Defense. Second, how do participants achieve sufficiently similar images of an organization to permit the independent but coordinated behavior that has been observed.

A large part of the participant's image of the Civil Defense was contained in the organizational saga—the story of the organization in narrative form. In contrast to Clark's (1972) definition of the organizational saga, the saga is treated here as a continually changing narrative account of the organization. While each individual had his own version of the saga, much time was spent among the participants discussing current events and how they fit with past actions. Through this mechanism, each individual came to understand the Civil Defense as a continuing, changing flow of events and to place himself within that flow. Chater III is my version of the organizational saga. It is based upon what the participants told me about the Civil Defense agency and is intended to create a picture of the kinds of information that the participants used to understand the Civil Defense. The most striking observation was that the primary form of understanding was not arranged topically or categorically, but was arranged temporally. In other words, the participants
understood current events and had expectations of future events based on their understanding of what had occurred in the past.

The organization is defined for the participants through the interactive or reciprocal relationship which exists between behavior and image. Using Argyris and Schon's (1978) concept of agency, the organization is collectively defined by what the participants do. But the behaviors that the individuals enact are constructed from the image that they have of the organization. What the organization does and what the individual images of the organization are evolve along parallel paths, each influencing the other.

Four aspects of the inter-relationships between image, behavior, and the organizational relationship are critical: (1) the relationship between image and behavior, (2) the processes by which organizational images are formed and changed, (3) the processes by which consensus among individual organizational images are achieved, and (4) the impact of consensus upon organizational functioning.

The image is a set of schemata which represents the individual's subjective knowledge of cause and effect within a certain setting. An organizational image is a label for the schemata that the individual accesses from memory to construct his behaviors in an organization. The behaviors are tested against their intended consequences through a process similar to that described by Weick (1969) in the enactment-selection-retention process. This process has several implications. First, the individual does not need to possess an "objective definition" of the situation, but tests his image against
the consequences of the enacted behavior. Second, this means that some individuals can have more adequate organizational images than others in the sense that the behaviors they enact from their images lead to the intended consequences more often. Third, if behaviors are constructed from images, then if the behaviors of several people are to be coordinated or organized, there is a requisite posed by the model that—at least at certain junctures—the different individuals must possess similar images. One of the principal mechanisms for achieving this similarity among individual images, or consensus, is the organizational saga. The model, as developed in Chapters IV and V, attempts to outline the points at which consensus must exist for the behavior to be organized. The model leads to the suggestion that it is fruitful to view organizations as socially created realities (Berger and Luckmann, 1966) which function in a lawful, predictable fashion—that the reason that organizations are structured and function the way that they do and the differences between organizations are explainable as a reflection of the parameters and constraints imposed by the organization of human memory.

**Simon's Model of Human Information Processing**

A number of different types of theories use the concept of schema (schemata in the plural) as the fundamental building block of human thought: information processing (Newell and Simon, 1972), developmental psychology (Piaget, 1952), and social psychology (Kelley, 1973). In addition, others have posited concepts which are very similar in form and function to schemata such as Schutz's
concept of typifications (Schutz, 1967), aspects of Chomsky's (1965) theory of transformational linguistics, and George Kelly's (1956) psychology of personal constructs.

Images are posited to be one form of schemata. "Schemata are the cognitive or mental structures by which individuals intellectually adapt to and organize the environment. Schemata are structures that are the mental counterparts of biological means of adapting" (Wadsworth, 1979:10). In Simon's (1979a) model, information is stored in natural language form in long term memory (LTM) data storage: "A theory of LTM must account both for the organization of information stored in the memory (the text) and for the routes by means of which information in the memory can be accessed (the index)" (Simon, 1979a:375). In abstract form, Simon's model posits that LTM consists of node-link structures. There are symbols which are stored at nodes. Certain incoming stimuli are "recognized" and the appropriate node is accessed, retrieving the appropriate symbol to STM. Relations are designated by links connecting the nodes which allow for associations among symbols. Objects or events may be designated through the associational structure (Simon, 1979a).

Simon also specifies the mechanisms by which these symbols are accessed (1979b). Drawing an analogy to an encyclopedia, in which the text is equivalent to LTM, information contained in the text (LTM) is accessed by points which comprise the "index."

The text of LTM is an associative structure—a system of nodes interconnected by numerous links. Information can be retrieved
from it not only via the index but also by following paths of links from one node to another through intermediate nodes. Retrieval using the index we call recognition; retrieval using sequences of links we call association. (1979b:42)

The control for what is recognized and what is associated is provided by the production system which is comprised of a condition-action pair.

The basic rule of interpretation is that whenever the condition of a production is satisfied, the action of that production will be executed. The presence in STM of the symbol denoting a certain word can cause the action of recognizing that word to be executed, i.e., locating in LTM the information about it that is stored there (1979a, p. 370).

Simon (1976) lists several types of possible productions: perception, goal creation, recall, and rehearsal. The symbols held in STM determine what type of production is activated.

For several reasons, then, the organization of any individual's memory is critical in determining his behavior. Most obviously, if information is stored in LTM at nodes in terms of symbols, then what information is retrieved depends on how the individual has that information stored symbolically. Second, in terms of the production systems, the index is organized symbolically—incoming stimuli are compared to symbols in STM. If the pattern of incoming stimuli corresponds to a symbol in the index, then information stored under that symbol will be retrieved. Taken together, this implies that how
an individual behaves will be a function of the categories he forms. Later it will be argued that these categories are dependent upon the plausibility structure of a particular society and the individual's personal history of reinforcement.

The relations just described form a model of how man thinks. Short term memory (STM) poses the limitations. George Miller, a psychologist, conducted a series of experiments in the 1950's which were summarized in *The Psychology of Communication* (Miller, 1975). The purpose was to determine the limitations of man's ability to process information. Simon subsequently incorporated these findings into his model (Newell and Simon, 1972). Miller's findings were that two parameters were critically important in defining man's limits: first the speed with which information can be transferred into LTM from short term memory (STM) and second, the amount of information that STM can hold at one time.

It has been shown, in various ways, (Simon, 1979a; Hochberg, 1964) that long-term memory capacity is virtually unlimited. The bottleneck, then, was inferred to be in what Simon terms "rapid-access storage" or short term memory. Estimated in various ways, it took subjects on the order of five seconds to process a "chunk" of information; e.g., it took chess masters approximately five seconds to memorize the location of the pieces of an actual chess game. The five second time period appeared to be an approximation of a constant (Miller, 1975). What varied was the size of the chunk of information that could be memorized based on the meaning that it had to the
subject—if a list contained words which had meaning, then approximately seven words could be memorized in the five second period. On the other hand, if the letters had no meaning, they did not spell an actual word, then only seven letters could be memorized in the five second time frame.

Taken together, the five second time frame appears to be a constant—less time and the subject cannot perform the memorization and more time and the subject does not have a corresponding increase in the ability to memorize more pieces of information. The second parameter, the amount of information that can be held in STM, is constant with respect to the number of chunks, about seven, but the information contained in the chunk may vary depending upon its meaningfulness to the subject. While there are several caveats necessary to this interpretation (see Simon, 1969), the important point is that if data can be meaningfully "chunked together," then these seven chunks may be held simultaneously in STM. If the data is not meaningful, then only seven discrete items can be held in STM.

Two points should be highlighted. First, the human capacity to "think" is relatively limited, constrained by the five second processing time existing between STM and LTM and the seven "chunk" capacity of STM. The second point is extremely important—the ability to access information depends upon the symbols or categories that the information is classified under. This means that while the underlying processes (the neural structures) may be invariant, there are no constraints on the form these symbols take. Discrete pieces of
information may be retrieved from LTM and recombined in different forms in STM to form novel or creative "thoughts." The form of the novel "thought" is still bound, however, by the individual's past experience.

The Organization of Memory

The organization of memory has three aspects: The structure itself, the processes, and the content. The structure is defined by the node-link structure and can be examined in terms of the organization of recall and the organization of the semantic memory system itself (Simon, 1976). The structure of recall is posited to be a discriminative net of a set of test nodes, which have a tree-like, branching structure. Perceptual tests are applied to stimuli or chunks in STM; and after a series of tests are performed, a terminal branch in LTM is reached. Semantic memory is a property list. This structure is web-like rather than branching and exists within LTM. It contains many cycles or multiple paths for accessing a single node. Together the two nodes give memory an associative property which, in turn, implies that man has the capacity to be creative, creating "thoughts" which have not been made before. Through the associative property man can create novel thoughts and behaviors (Newell et al, 1972).

Another feature of this model of memory is that it has the demonstrated capacity to store information either topically or episodically (Simon, 1979a). Stimuli, as a consequence, can be perceived in terms of either their context or in narrative or episodic form.
Thus, in a topically organized memory, associated with a node for 'restaurant' could be all sorts of information about restaurants. Their purpose, physical layout, organization and staffing, and so on—the contents of a handbook on restaurants. In an episodically organized memory, the schema associated with 'restaurant' could be a script, describing the typical sequence of events that occur when one enters a restaurant (Simon, 1979a:377).

Because of the associative property, a single concept can be organized either topically or episodically. Individuals can therefore conceive of events in terms of scripts. The participants in the Civil Defense, for example, were far more successful at recalling the particulars of a past event when asked to recall in a narrative form.

The Hierarchy: Simon states that, "A man viewed as a behaving system is quite simple. The apparent complexity of his behavior over time is largely a reflection of the complexity of the environment in which he finds himself (Simon, 1969:52)."

The control function of the thought process is through a hierarchy of subroutines (Simon, 1969). For the brain to be capable of hierarchic information processing, the memory system must possess the following characteristics (Simon, 1969; Chomsky, 1965):

1. A mechanism for defining objects
2. A mechanism for defining actions
3. A mechanism for specifying lawful relations
4. A means for nesting object, action, and relational structures
5. Mechanisms or rules for stringing objects, actions, relations, or nested concepts together.
Man is posited to control the adaption process through hierarchic information processing. Perhaps as important, to the extent that the environment is hierarchically structured (Weiss, 1971), one's ability to adapt to that environment is limited to the extent that he can internally represent the complexity existing in the world in a manner similar to Ashby's (1964) "Law of Requisite Variety."

Simon's model contributes to the concept of images by suggesting how Boulding's logical requisites for images could be represented internally. This, in turn, provides a way or context for interpreting on-going behavior. The next issue is how the model relates to an actual organization—specifically, how it relates to the observed behaviors at the Civil Defense.

**Images, Information Processing, and the Civil Defense**

For fifty-five days over a fifteen-month period, I observed and interviewed most of the people in the State Civil Defense, trying to answer the question, "What was the agency and why did it work the way it did?" I was not trying to understand one person fully or to understand the Civil Defense in terms of textbook principles, but I was trying to "see" the organization working.

In the beginning of the data collection process, I moved around the organization trying to find a structure which would ground my understanding. Understanding in terms of job classification or the line of authority diagrammed in the organizational chart were of little use because few of the participants paid any attention to them. Who did what jobs and on what basis seemed to have been defined in
terms of expectations and past behavior. Similarly, except for the walls of the buildings, the assignment of desks, and the receipt of paychecks, there didn't seem to be any organizational boundaries. Some people from other organizations spent most of their time at the Civil Defense and behaved as if they were agency members, while some people on the Civil Defense payroll seemed to work elsewhere.

Soon after the interviewing process began, the shape and form of the Civil Defense began to emerge. The key was not in the formal properties of the agency, but in the expectations that the participants formed of one another, which in turn, created a division of labor and informed the individual of what tasks he was to perform. As I asked individuals to describe the Civil Defense and their relation to the organization, themes in the responses began to emerge. There were individual differences in the accounts of the organization. Across individuals, however, there were several themes which were almost always told the same way. Sometimes different people would use very similar phrases to one another to describe the same event or use the same anecdote to illustrate a point. Second, there seemed to be a pattern to these similarities in the accounts. There seemed to be certain themes within the accounts which many people recounted in essentially the same way. In terms of the model, somehow the participants had come to share uncannily similar images of certain aspects of the organization and how it had come to be that way.

Using methods more related to detective work—or my view of detective work—than to positivistic scientific methodologies, I
began to trace back, through recorded interviews, how the participants had come to share a uniform image of the Civil Defense. My version of the "organizational saga" (Clark, 1972) is the subject matter of Chapter II, and my conclusions about how the saga was formed and its relation to the individual's images of the Civil Defense are contained in Chapter III.

The Research Problem

Long after the data collection process had ended, I agonized over the analysis of what I had observed. While I felt I understood "the Civil Defense" and what had occurred, I was having a tremendous amount of difficulty translating my observations into the terminology and concepts of the organizational literature. This problem manifested itself in two ways. First, in most instances, I could translate discrete instances of behavior into traditional conceptualizations (e.g., Dunnette, 1976) in the literature; but the behaviors I had observed almost always seemed to incorporate more aspects than any particular theory addressed. The practical consequence was that my explanations were becoming far more complex than the behaviors that I was trying to explain. The complexity of the explanation was resulting from stacking theories, not from the behaviors.

After many false starts, the key to escaping my explanatory dilemma was that "the system" was not the organization but the behaving individual. The organization was not defined by formal properties, but by what the people did. I was not looking at a "formal" or "complex" organization (Perrow, 1970), but at an "enacted"
organization (Weick, 1969; 1977). Weick (1969: 91) states, "Organizing consists of the resolving of equivocality in an enacted environment by means of interlocked behaviors embedded in conditionally related processes. I decided to focus on the individual as the system, not the organization.

The second major problem that I had translating my observations into the traditional conceptualizations was that I could not "see" many of the behaviors in terms of the literature. I had seen people get angry over the lack of a pay raise or an insult--real or imagined--and threaten to quit, but I had never "seen" an instance of job satisfaction. I had seen radio operators yell at people who were interfering with their work, but I never "saw" an instance of task autonomy. What I had been observing were better characterized as streams of behavior, enacted scripts, or processes. The behaviors seemed more readily interpreted in terms of processes rather than topic areas.

The problem that I had to address in the analysis, given these two problems, was how could the organization be described conceptually? The realization of what had gone wrong in my previous attempts at analysis pointed to new directions. The fact that much of the ability that I developed to understand and predict what was happening stemmed from the fact that I knew the participants and led me to phenomenologically oriented theories of social behavior. Some I had been familiar with prior to the study (Weick, 1969; Blumer, 1969; Silverman, 1971). Other theorists I discovered as a product of
trying to explain my observations to myself (Garfinkel, 1967; Schutz, 1967; Cicourel, 1974).

This general approach to the study of behavior simplified the explanations, but I was still "seeing" more pattern to the behavior than the phenomenological approaches lead one to expect. The images that the participants had were ordered, and the ordering seemed to have something to do with the way the individuals stored their knowledge of the world. It was a long time before I settled on Simon's model of information processing as a way of explaining the patterns I had observed.

The participants were responding to stimuli in a force-field (Lewin, 1951), and I had been impressed several times by the subtly or the sophistication of someone's response. These responses seemed contrary to my conceptualization of Simon's (1976a) concept of satisficing. At that time I was familiar with Simon's earlier work on organizations (Simon, 1947; March and Simon, 1958) but not with his later work on information processing. I came across this work almost by accident, through a misperception of what the title The Sciences of the Artificial implied (Simon, 1969). The model made all the observations and other theories that I had been struggling with, such as Piaget's developmental psychology (Wadsworth, 1979), social learning theory (Bandura, 1977; Mischel, 1973) and attribution theory (Kelley, 1973; Wyer and Carlston, 1979), fit together.

The Civil Defense that I had observed had not been a passive responder to forces in the environment; it became what it was through
the actions of the participants. Other longitudinal studies have reached similar conclusions (Kimberly, 1979; Pettigrew, 1979). What I hope to contribute in this study is a way of seeing organization in terms of enactment (Weick, 1969) and human information processing (Simon, 1976a). Neither concept has been extensively researched in actual organizations. To the best of my knowledge, Simon's model has only been tested in laboratory experiments with the exception of some limited applications of its implications for decision-making (e.g., Cohen, March, and Olsen, 1972). Similarly, Weick's concept of enactment has been developed theoretically and with the exception of a limited test of its existence (Bougan, Weick, and Binkhorst, 1977) and limited case examples to demonstrate its applicability (Weick, 1977) there has been little research on what an "enacted" organization looks like.

The Plan of the Dissertation

Chapter II is on methodology, explaining the rationale and methods employed to collect and analyze the data. Chapter III is a narrative description of the central events in the State Civil Defense during Terry Wilson's tenure as director. Basically the narrative represents my image of the organizational saga. As already stated, I was impressed with the similarity of the accounts of the organization presented by the various participants. What is presented in Chapter II is my image of the occurrences, drawn from the participants' accounts and my observations. While the individual accounts were highly similar, no one individual had all of the facts of an
occurrence. What I have attempted to do in Chapter II is draw the core events within the Civil Defense, incorporating the variety of perspectives in the same way that the events were blocked by the participants.

In this sense, the account presented in Chapter III is not an "objective" account of the occurrences, but the occurrences as perceived and related by the participants. The organizational saga may be taken as an attempt to show, in a short space, the types of "facts" used by the participants to guide their own behavior. The saga will be described in terms of phases: Terry Wilson's arrival, building the communication system, the hazardous materials program, and Terry Wilson's decline. Each phase presented a different type of problem for the organizational members to deal with. Second, most of the participants understood the organization in terms of phases.

Chapter IV discusses the Civil Defense as an image formation process, beginning with an analysis of how the organizational saga developed, through an analysis of the role of information processing and learning, to a view of the Civil Defense with individuals in action as the focus.

Chapter V is a preliminary model of organizing based on the principles developed through the observations and analysis. Chapter VI contains the conclusions and suggestions for further research. Throughout the dissertation, the names of individuals, organizations, and places have been changed to preserve anonymity.
CHAPTER II

METHODOLOGY

The study can be conceived of in two distinct phases, data collection and analysis.

The study was a longitudinal case study utilizing open-ended interviews (Dexter, 1970) and observation (Sanday, 1979). Of the fifty-five days spent in the Civil Defense over a fifteen-month period, the bulk of the data was collected over two, two-week and one, three-week period supplemented by occasional shorter visits and frequent phone calls.

The participants were fully informed of the purposes of the study and were promised that their identities would be masked.

The Observations

The dissertation covers a three-year period of the organization's history of which I only actually observed the last fifteen months. The question of how accurate the observations are is impossible to answer objectively for several reasons. Complete understanding was not the goal, but an accurate sense of how the organization fit together and why. Second, in trying to discern the participant's perception of the organization, I was, in effect, enlisting all of the participants as informants (see Douglas, 1976). Since I was interested in their opinions as well as their observations, I had
access to a wide and deep data base. I could look at both the content and form of responses and see how perceptions of those actively involved in an operation differed from those who were on the periphery, how newcomers' opinions differed from the more experienced members' opinions, etc. Researchers who distrust participant's opinions, in effect, throw away many important sources of information. The fact that participants are frequently unaware of the causes of their own behavior (Nisbett and Wilson, 1977) is an insufficient reason for not asking the participant his opinion. The researcher who has read theories of how environmental forces can shape behavior can ask for the participants' opinions, watch their behaviors—keeping track of the forces that seem to be impinging on the subject—and then ask the subject what he thought happened. In this manner, one can begin to see, in practice, how aware the participant is. Similarly, if the researcher asks the same question of many people, he can begin to get a feel for how many ways the situation can be perceived; and each response becomes a kind of validity check on the others. The fact that the participants enacted behaviors based on different perspectives becomes part of the answer. While, as stated in Chapter IV, the participants often seemed to be unaware of the causes of their behavior, I was more impressed by how much they did know.

Establishing Contact

The first two-week stay was spent entirely at the Civil Defense round the clock, spending the daylight hours conducting the initial observations and interviews. Nights were spent in the operations
room observing and sleeping in a bunk room adjacent to the radio room.

In retrospect, the act of staying in the Civil Defense headquarters round the clock was extremely beneficial for several reasons. The initial interviews were formal and generally stilted. People would give information if asked and would respond to questions politely and helpfully. But the strangeness of a researcher in their midst, the tape recorder in the background, and the signing of consent forms created a distance.

In the evening, however, people would come in frequently after duty hours. This gave me an opportunity to talk to them casually. It was in these informal conversations that the participants first opened up, telling me about their thoughts, feelings, hopes, and aspirations. Once the informal relations were established, they would generally continue through the daylight hours. In addition, it was the number of people who came in or called in during their off-duty hours which first demonstrated to me how central the Civil Defense had become to many of their lives.

Relations With the Participants

I established a number of types of personal relationships within the organization. There were approximately fifty people in the Civil Defense. By the time I finished the data collection, I knew slightly more than forty of them. The ten whom I didn't meet, with one exception, were in regional offices. I also knew, to varying degrees, approximately seventy-five people outside the formal organization who
were either related to Civil Defense activities or could provide outside views. These included firemen, policemen, the medics, officials of chemical and petroleum companies, railroad and trucking officials, and other private and public agencies.

The bulk of the data collection focused on internal relations. I had a close personal relationship with three individuals within the Civil Defense. These were people that I spent days with both on and off duty and who helped immensely, filling in the background and context.

There were another ten people within the Civil Defense and four outside that I knew fairly well. By knowing fairly well, I mean that I felt free to just walk into their offices and ask them about what was on my mind without being careful of my phrasing. In this sense I knew them well enough that I would not inadvertently offend them or hurt their feelings. These seventeen people constituted the bulk of the operating core of the organization. By the time I left, there were only two core persons with whom I still had a relationship which could be characterized as more formal than informal. One was formal with almost everyone, and the other didn't have much use for university-type people.

The importance of these initial relationships that I formed was great. My sticking around in the evenings engaged the participants' active help. The harder I worked on the study, the more they tried to help me by giving more candid replies. To my knowledge, no one tried to mislead me, but it became very apparent how much the participant can influence the reply by how fully he answers a question.
It was the participant's choice as to whether he would merely answer a question or help me understand the situation fully. Second, it was my presence in the evenings that started bringing invitations to go to "the club" after work and to their houses for dinner. Part of it was kindness and part was a desire to help me with my study, but many not only let me observe them at work but let me observe their lives. Most enjoyed having a researcher around. It was flattering and it gave many an opportunity to talk about their work. I was an outsider who was interested. My presence gave them an opportunity to talk about their work. I agree with Jack Douglas' (1976) observation that people will not disclose important facts until they like and trust you. Over and above the researcher's personal, social, or interactional skills, like and trust are established over time. In this respect, participant-observer studies in which the researcher establishes his credibility with the participants are more apt to be capable of presenting an accurate view of the organization than studies in which the researcher only has a formal or negotiated relationship with the participant.

**Participants as Informants**

Another advantage of observation over time is that I got the opportunity to know the participants. I not only had the opportunity to see how many people had the same perception of a situation but also a means of viewing perception differences and changes. Many of the relevant aspects of groupings are bound up in who is saying what to whom and on what basis. The researcher who tries to approach
human subjects objectively may find the answers to his questions but miss everything else which was germane to a definition of the situation. The participants in the Civil Defense had elaborate images, not only of their tasks but of one another. The most direct way of finding one person's opinion of another is to ask him, and the most direct way of checking the validity of the response is to observe if it is consistent with his behaviors. The people of the Civil Defense varied greatly not only in their knowledge, but in their awareness of their own behaviors and themselves. Those who were the most action-oriented frequently displayed a low degree of self-awareness. They often couldn't offer an explanation for their behaviors other than "it seemed the right thing to do" or "it worked before." Conversely, those who were more introspective often could offer a fuller, more analytically satisfying description of events. But those who were more introspective frequently performed a more observational than active role in events. Those who had the most informed opinions of what was going on frequently had a different mind-set or orientation than those who were central to the action. I had to be aware that those who were my best informants thought differently about issues than those who were central to the action. Again, perhaps the best guard against this type of bias is that the researcher know his subjects well and watch the participants over time. Lacking formal methods of measuring validity and reliability, the researcher must develop the capacity to discriminate not only with respect to who knows what, but on what basis.
Checking Validity

The direct answer to the question "how do I know that my analysis is correct" is that I saw it or someone told me about it. This leaves the interpretation open to whatever biases, conscious or unconscious, that I possess. But I am also convinced that the best antidote is not solely more formal measures, but continued observation.

As much as I tried to be a passive recorder of the on-going events, I found that I was actively trying to interpret what I was seeing. I found, however, that the active interpretations could be turned into a validity check. When a situation didn't turn out the way I thought it would or someone behaved differently than I thought he would, disconfirming instances would become indications that I didn't understand enough. The more that I learned, the more contradictions there were.

The Civil Defense was full of contradictions. The resolution was not in making the contradictions disappear. I decided that as an operative criteria I had pursued a particular topic far enough when the situation "made sense," contradictions and all. Again, these resolutions were primarily dependent on understanding the facts per se, but seemed to be more dependent on how well I "knew" the participants.

The field researcher, in this sense, develops images of his own, and the best validity check is the same one that the participants face--how well the expectancies which are formed from the images play out in reality.
A month intervened between the first and second extended visit to the Civil Defense. I was during this time that Wilson and Toner, the operations officer, had their falling out with one another. I arrived later. In many respects this was very fortuitous because when I returned everyone was very uncertain about what would happen, who would keep their jobs, and what the organization would become. While this was definitely not a good time for any of the participants, I profited from their misfortune, for, in their turmoil, I had the opportunity to see what kinds of factors held the organization together. Jobs and careers were at stake. For them, I was a good person to talk to because I already knew them and the organization; but I was one of the few around who was not personally involved. Most of what I was told during this time was not written down nor did I report it in the dissertation. But it did give me a good feeling for what types of emotional ties existed and how important they were. But perhaps most important, it was the act of listening to what they had to say that impressed me with the distinction between the commonality of their images of what the Civil Defense was, as represented in the organizational saga, and the individuality and the differences of the way each person related his life and interests to the relationship he had with the organization.

Overcoming Selective Recall

I was already reasonably familiar with what I came to label the organizational saga (Clark, 1972), but it was during this time that I began to ask systematically about how it was formed. While I do not
believe that I ever overcame the problems of selective recall, many of the difficulties could be overcome. Asking many people about what a particular time had been like helped. I found that the more I knew about that time the more I could help the participant recall through my questions. If I asked them to recall events in a narrative form and could say "but what about when such and such happened," the participants could usually remember in greater detail. If I asked them to try to remember their feelings at the time, they would frequently remember details they had passed over earlier. In addition, the participants were actively trying to help me and, on their own, were aware that their memories were faulted and that my research demanded accuracy. There were several instances when someone would come back to me and say "I was thinking about what I told you yesterday and that really wasn't the way it was." In most cases, whether the tone changed or not, the retelling would have greater detail and address more aspects. These instances taught me to try to go over the same ground several times with a person from different perspectives.

**Other Sources of Data as Checks**

I am reasonably confident that in enlisting the participants' active help as well as reading the various letters, memos, mission logs, and other sources of information, the information concerning who did what, when, and how is a reasonably accurate representation of what occurred. To the extent that there are errors, my suspicion is not that the event did not occur the way I described but that more was involved than I observed.
The Analysis

The analysis was far more problematic than the data gathering. The first problem was turning all I had seen and heard into a relatively short, comprehensible linear description. The second problem was how to relate that description to a literature which conceives of organizations in terms of topic areas and in abstract terms. The two problems were interactive; for if I focused on one type of theory, it would cause me to focus on certain aspects of my data; and if I focused on another type of theory, another whole set of facts might be relevant, but the first set might not. Having seen many aspects of one organization, I was discouraged by the narrow focus of most of the organizational research.

Past qualitative research was not much help either. Of the classical studies, there seemed to be two types. For example, William Foote Whyte's (1955) Street Corner Society and Elliot Liebow's (1967) Tally's Corner both attempted to inform and change the reader's view of life in the ghetto. The second type, of which Dalton's (1959) Men Who Manage, Gouldner's (1954) Patterns of Industrial Bureaucracy, and Crozier's (1964) The Bureaucratic Phenomenon are examples, attempt to evaluate a specific theory. More recently, ethnomethodological studies (Garfinkel, 1967; Mehan and Wood, 1975) have attempted to show how individuals create and maintain a socially constructed reality (Berger and Luckmann, 1966). Generally, these studies have been derived through participant observation (Sanday, 1979; Henslin, 1974), or symbol manipulation (Cicourel, 1974). Another trend has been the tracing of systemic forces (Kanter, 1972; 1977).
As with the hypothesis testing mode, each type of qualitative approach addressed only a relatively narrow range of concerns. As Allison (1971) demonstrated graphically in *The Essence of Decision*, how the theorist views a situation depends on what types of models are used in the first place. Without changing the facts related to the Civil Defense, the image created depended almost wholly on what type of explanation was employed. I was convinced at this point that the largest problem with behavioral and social theories stems not from problems with internal validity but from the attempt to capture large aspects of behavior using too few variables (Pinder and Moore, 1979). As Ashby (1965) has demonstrated mathematically in the Law of Requisite Variety, it takes variety to capture variety.

The facts of the Civil Defense did not change as I tried explaining it in terms of force fields (Lewin, 1936) or interactionism (Blumer, 1969), but the image of what the Civil Defense was shifted markedly as I changed modes of explanation. Each theory made certain sets of facts relevant and others irrelevant.

After several unsuccessful months of trying to find a suitable literature base to ground my observations, I decided to reverse the analytic process. I had written Chapter II, The Organizational Saga, shortly after the data collection phase ended. I decided to treat it as the issue to be explained. The analysis, then, would not be a view of the organization from a particular viewpoint (although many of the observations had been framed in terms of an interactionist and phenomenological stance) nor would it be a comparative study of
different orientations, such as Graham Allison's (1971) *Essence of Decision*. Rather, I would treat the organizational saga as a given and try to find a way of conceptually explaining what I had observed and been told. The participants had been responding to many factors—more than any single theory addressed. I was concerned, however, because so much of the analysis now depended on my interpretations which depended on my image of what had occurred. This weakness was mitigated by what I felt to be the direction of the errors this might induce. If my observations are erroneous, it is because I saw too little, not too much. Thus, I feel that if there is error, it is not because what I reported did not take place but that more was involved that I was not aware of. Whatever biases exist can be removed in the future by others who have different theoretical orientations performing similar types of studies which might focus on different aspects of the participants' behavior.

I chose the final setting based upon a model using Weick's (1969) concept of enactment and Simon's model of information processing because that combination allowed an analysis of the observations retaining all the significant aspects. As a bonus, and adding to my confidence, the use of these theories focused my attention on aspects of my data that I had overlooked before. The most important issue raised was the relation of the content of individual images to the individual's capacity to acquire reinforcement and the way this subsequently led to the formation of core and peripheral in-groups and out-groups within the Civil Defense.
Conversely, the act of comparing Simon's and Weick's theories to the functioning of an actual organization offers suggestions for the further development of these theories. Weick's model needs to include factors relating to individual's content and use of images. Simon's model, which was developed through experiments on problem solving, can be filled out through investigations concerning how individuals utilize information to create socially constructed realities. Simon, to this point, has confined his research to problem solving strategies. There is reason to suspect that Simon's model applies to a far wider arena of behavior than just problem solving. Second, I feel that Simon takes an overly narrow view of the role of motivation (see Simon, 1976b). From the study of the Civil Defense, it is the individual's perception of the outcomes that are available, either directly or indirectly, which determines which images will be retrieved from memory.

As the theory-in-use (Kaplan, 1964) determines which set of facts are relevant, the researcher or theorist is limited just as the participant is by his prior knowledge in his definition of the current situation. The problem that the qualitative researcher faces is the same that the quantitative researcher faces when he attempts to decide how different pieces of research fit together (Yin, 1981). The difference between the two is that the qualitative researcher faces the integration problem within a single organization while the quantitative researcher faces the problem within the literature. Hopefully this work has taken a first step toward an ultimate praxis
(Benson, 1977) by taking the organization as a whole and attempting to find a way of viewing the literature in such a way that the organization is not forced into a procrustean mold.

Future case studies may focus on developing alternative views. There are many ways that an organization can be perceived. Case studies which have designs similar to this one in which the researcher observes an organization and then tries to tie the observations to a coherent literature, done by researchers with backgrounds different from mine will contribute greatly in filling out the matrix of logical possibilities.
To understand the changes at the Civil Defense, it is necessary to understand Terry Wilson. He had both a high energy level and a quick mind. When a task was clear, few men could accomplish as much as he could in the time. But when the situation demanded patience or planning, Wilson was like a bull. He came full of energy which had to be used. Wilson, although only thirty at the time, already had the qualifications for the Civil Defense job.

In high school, he had worked as a volunteer in the county Civil Defense. Inside the local Civil Defense, he organized rescue teams and trained scuba diving teams to search for drowning victims in the large lake that formed one boundary of the county. After he had been in the county office for one year, the director appointed him Deputy Director at age eighteen. One year later there were some "financial problems" at the county Civil Defense. The Director was removed, and Wilson was named the new director. During Wilson's seven years as the County Civil Defense Director, interrupted by his time in College, he made his Civil Defense the most active unit of the one hundred county C. D.'s in the state. It became, by far and away, the best equipped of the volunteer, rural units and was better equipped than some of the professionally staffed metropolitan units.
As the County Defense Director, Wilson was aided by a political mentor. L. B. Taylor was the Safety Director at the State Department of Transportation. Although he had little personal political ambition, he was a very knowledgeable and skillful political strategist. His official position was not very high in the state hierarchy, but many high officials sought his counsel. Taylor took an early interest in Terry Wilson's career, and his friendship and counsel for Wilson began early and continued without wavering through Wilson's tenure as the State Civil Defense Director. Late in that tenure when Wilson was under heavy political fire and Taylor was being asked to withdraw his support of Wilson, Taylor replied, "Look, I know he's a son of a bitch, but he's my son of a bitch."

Wilson's planning horizon was, at best, days. Usually it was in terms of hours. Taylor thought in terms of years. As the County Civil Defense Director, Wilson's success was due primarily to his drive and energy. Much of his direction and many of his organizational building strategies, however, were the result of Taylor's counsel. Wilson later employed successfully at the state level many of the strategies originally outlined by Taylor for Wilson's activities at the county level.

Another relationship that developed during this time and continued later was with the local newspaper editor, Ben Simon. Simon wrote many articles about Wilson and his Civil Defense unit. It was a rural county and not much happened. Wilson was one of the few doing anything that could be written into a story. The two men became friends.
Simon had also been working his way up through the officer ranks of the National Guard and was appointed State Adjutant General after working on Joe Stevens' successful gubernatorial campaign. As the Adjutant General, Simon inherited the sleepy State Civil Defense, as well as the state's National Guard. While he was not particularly interested in the Civil Defense—his job interests focused on the National Guard—it was irksome to Simon to have an organization which was increasingly gaining a reputation as a repository for other organizations' castoffs. Simon recommended Wilson as the director.

Wilson's appointment at age thirty was the result of the convergence of three factors: Stevens, the new governor, was politically indebted to Wilson's father; Wilson had fashioned the most effective county level C. D. unit in the state; and he was friends with Taylor and Simon. Simon's operating orders to Wilson were far-reaching and open to interpretation: "Take the State Civil Defense and do something with it."

Wilson's Tenure as Director

Terry Wilson was an energetic young man who had just been named director of an older, gentleman's organization. It was predictable that sparks would fly. No one in the organization was ecstatic about Wilson's appointment. He had a reputation for being arrogant, brash, and frequently rude; both he and his reputation scared people. Even the younger people in the organization, who wanted more action, were emotionally attached to the cozy old ways.

When Wilson entered, he had four resources: (1) a reputation as
an activist; (2) an explosive energy level; (3) an unfulfilled organizational charter; and (4) a mandate to "do something with the organization." The charge "to do something with the Civil Defense" translates into a requirement to be active, not a plan for action. Active in what? Neither Wilson nor anyone knew. Wilson rarely thought ahead about developing the organization; he reacted to obvious deficiencies. Three deficiencies were immediately apparent: (1) nobody in the organization did much work that was of any consequence; (2) there was no communication system; and (3) nobody outside the organization even thought about the Civil Defense, much less paid attention to it. While Wilson attacked those three problems simultaneously, for descriptive clarity, they will be described sequentially.

The People: Initiating An Operational Mode

Wilson announced his own appointment at the Civil Defense. Walking down the stairs to the state headquarters for the first time, he ran into the operations officer on his way up the stairs. They exchanged pleasantries, then the operations officer asked Wilson why he was there. "I'm the new Director," Wilson said. The operations officer rolled his eyes. Then, after a pause, he said quietly, "I'm sick," and walked off. He quit before the end of the week without any more being said.

Ultimately, the major accomplishment of Wilson's early tenure would be the development of a communications system. Initially, however, what seemed more important to the participants was the move
toward an operational role from an administrative role. Wilson's first acts in creating an operational orientation are likewise important because they established a leadership style which carried into the future.

Two days after Wilson took over as Director, it began raining and continued for two weeks, causing severe floods statewide. On the fourth day of the rain, Wilson activated the Emergency Operations Center (EOC). This surprised everyone. In the past, the Civil Defense's role in disasters had been largely in the recovery phase, not in the active phase. Wilson spent days in the EOC, listening to the commercial radio account of the flooding and reading old disaster plans. His actions generated speculation and rumors among the employees, but they continued to arrive for work at 8 and leave at 4:30 p.m.

Mike Toner, the public information officer, was the only employee to join Terry Wilson in the EOC. Toner, who was officially classified as a draftsman, was in his middle thirties. Popular and hard-working, Toner was one of the few who was pleased with Wilson's appointment. He looked forward to the promise of more activity.

Together, Wilson and Toner drafted a letter for the new governor's signature, declaring a state of disaster and naming the Civil Defense as the coordinating agency. The Governor signed the letter. As a practical matter, being declared the coordinating agency did not have much effect. None of the large emergency organizations, such as the State Police, called for instructions, nor did
the Civil Defense have the manpower, resources, or organization to materially affect the on-going situation. But as Wilson put it, "By the time it (the flooding) was over, everybody knew we were there."

While the Civil Defense had taken little overt action, the Governor's declaration had focused media attention on the Civil Defense. Wilson and Toner were on TV and radio repeatedly, explaining the extent of the flooding.

Another outcome of the flood was the beginning of a new attitude within the Civil Defense. Suddenly the Civil Defense was on television. People within the organization began to become a little excited about its potential.

Furthermore, Wilson emerged from the experience with a sense of direction. In a time of emergency, he had seen the organization in inaction. He had seen the employees go home at the close of the regular business day. He had read the disaster plans and found they were not workable. In trying to understand the extent of the flooding, he had found himself reduced to listening to commercial radio.

His first act was to promote Toner to operations officer, bypassing all of the section heads. Then he began lining up the rest of his staff. He did not change any of the other positions. He merely stopped talking to those not willing to work harder. Section heads who enjoyed the older, slower pace were not asked to leave, which was a relief to them. But they soon found they had little to do. The only way that they could function in their jobs was to cooperate with Wilson and work at the pace set by him.
Wilson also let the people who were castoffs from other organizations know that they were no longer welcome in the Civil Defense and within a month they were gone. All Wilson said was that "everyone was going to work their butts off and anyone who did not was going to be canned." Wilson, however, never threatened anyone individually.

Finally, Wilson stashed all the disaster plans in file cabinets in a back room. All new plans would be derived from experience and would reflect what the organization actually did. In place of a plan, Wilson substituted a dictum: "If someone calls the Civil Defense for assistance, things will happen." For the next two years, the Civil Defense responded to every state emergency, both minor and major. There were few written plans. Operating procedures were evolving in practice. Funds for the Federal Comprehensive Employment Training Act (CETA) were used to hire eight radio operators. With the eight new radio operators, the Emergency Operations Center could be operated on a 24-hour a day basis.

Building the Communication System

To make up for the lack of a base station radio, the communications officer had taken the only car radio unit and mounted it in the operations room. Shortly after taking over, Wilson mounted the radio in his state car. One of the favorite stories in the organization, recounted by all with obvious pleasure, was how Wilson went around complaining loudly that he had a radio but no one to talk to. The story assumed mythical proportions; but like many myths, it embodied the central truth of how the communication system was built. The
ramifications of the communication system will be discussed later. What is relevant at this point is how and why the communication system was built.

Wilson, who was also a captain the National Guard, was used to a relatively high level of communications capability. For years the Army has issued good communication equipment—its presence being taken for granted. Wilson was used to just grabbing a microphone and talking to anyone he wanted to. He also loved toys, and a transmitting radio with all its buttons is a marvelous toy. In the County Civil Defense, he had built a relatively elaborate radio network—each volunteer had a car radio; and the base station was powerful enough to reach any car in the county.

Wilson’s first step in building a state-wide communication system was to avoid requesting funds from the legislature. One of the ways the legislature kept the taxes low was by saying "no" to anything new. While almost everyone in the government knew that the legislature was "cheap," almost no one knew how to deal with it. When an agency submitted a proposal to the legislature which was turned down, it would either give up or resubmit a thicker proposal with more statistics backing up its case. These requests were often turned down also. Most took a rejection as an indication that they had not done their homework properly—which missed the point. The legislature was reluctant to fund anything new.

Wilson’s strategy was to scrounge and beg old radio sets, placing one set in each car. The radios were obviously inadequate—they were
everyone else's castoffs. Once he had a radio in each vehicle and in the proper base stations, he began complaining loudly that the system was inadequate, breakdowns were common, and many of the components were not compatible with one another. The legislature began funding more equipment. The legislature would not fund a new system, but it would upgrade an inadequate one. Wilson's strategy depended, in large part, on the hope that no one in the legislature would realize that the request for upgrading an existing system referred to what was, in fact, a brand new system.

The second task after installing radios in each vehicle was to establish a capacity to communicate. Again, the legislature was unlikely to provide funds which meant, at the onset, that the Civil Defense was going to have to tie into somebody else's system. The National Guard had a state-wide system, but they transmitted on frequencies assigned to the military. The State Police also had a state-wide capability, but there was agreement among all concerned that it would be unwise to put two emergency units on the same frequency. The remaining choice was the Fish and Wildlife Division. They had such a system because their people operated independently and the volume of traffic was low.

As soon as the Civil Defense was tied into the Fish and Wildlife network, work began to get their own frequencies using the same strategy used to acquire the car radios. Wilson put in a request to the legislature to provide the funding for a very sophisticated (expensive) system.
By this time, Wilson had been director for a little over a year, and the Civil Defense was actively involved in on-scene operations. In operations involving many organizations, as many disasters do, the coordination of effort is difficult. It is hard for the police to coordinate their efforts with fire departments, Red Cross, emergency medical services, etc., without one organization being named as the lead or coordinating organization.

While from an operational point of view, it is hard to dispute the merits of having a lead agency to coordinate a large scale inter-organizational response, for a variety of reasons, most having to do with power, each agency would resist the actions of another to be named the lead agency. First, no organization wanted to be subordinated to another. Second, if any organization was named the lead agency, it automatically became the most important—receiving the lion's share of the prestige, attention, and possibly, money.

Wilson's actions (they were not thought out well enough to be called a plan) attacked the problem obliquely. The Civil Defense's charter, which stated that the organization was to be responsible for protecting the lives and property of the citizens in time of attack and disaster, gave the Civil Defense more legitimacy in assuming the role of the lead agency than others. However, no director of a large organization, such as the Department of Health, was going to place his organization at the disposal of a small organization like the Civil Defense any more than he would allow the State Police to direct his organization.
Wilson's oblique response was to keep building his communications system. Piece by piece, he added to the system. No one could see any real harm in it. Many thought of Wilson as an overgrown boy with a fondness for toys. It became easier to give him the money for the radios or let him get a Federal communications grant, than to put up with his nagging.

The key to the communications system Wilson finally built was its versatility. Microwave repeaters were put on the tops of tall mountains. Now, not only could the base station contact any region of the state, but any car could talk to any other car in the state. A car with a small radio unit at one end of the state could make a transmission; the weak signal would go far enough to be picked up by a microwave repeater and be amplified. The signal would be broadcast, through the microwave system, to any location in the state.

This improvement altered the operational aspects enormously: people in the field could be contacted immediately, experts on any subject could be consulted without having them on scene, and perhaps most important, any car with a radio could function as the command post. Overall, the effect was to allow key people to be constantly in the field; they were not tied to the headquarters waiting for something to happen.

Next, hand-held radios, similar to those worn by police, called "pack-rats," were added. These radios were small, only having a transmitting range of a few miles. But, the units were tied into the car radios. A person could make a transmission, the signal would be
carried to the car unit where it would be reamplified and rebroadcast on the microwave system. Operationally, now an individual could function as a command post; he did not even have to be in his car.

The last major improvement in the communications system was the installation of a base station radio at the headquarters with an enormous range of capabilities. Perhaps the most important single capability of the system was the ability to "patch" communications between frequencies. That is, a transmission coming in on one frequency could be rebroadcast directly on another frequency. For example, a state policeman could call the Civil Defense on his frequency, ask that his call be patched to the Fish and Game frequency, and talk to a game warden in another part of the state. Except for pushing two buttons, the patch would neither tie up the console nor the operator. The console also could patch a phone line to another phone line or to any radio frequency. This was the only such system in the state.

The effect of such a system in terms of organizational power and organizational politics was enormous. In emergency situations, the primary mode of communications is by radio. Because the Civil Defense had the only patching capability, not only were far more things possible than had been in the past, all of these calls had to go through the Civil Defense. Because the Civil Defense was the only organization which could communicate with any other organization operating on a state frequency, they could control any operation. This was a very real example of the cybernetic adage (Wiener, 1950)
that the control of a system's communications is equivalent to controlling the system itself. What no organization had been able to do politically, the Civil Defense had accomplished by an end run through the use of technology; it had become the lead agency in disaster operations.

The irony is that no one, inside or out of the Civil Defense, fully realized what the impact of the developed communication system would be. This huge political coup had not been planned. Even Terry Wilson, when he was in the process of building the system, was not fully aware of the extent of its potential impact and all of the ramifications. Wilson was simply responding to a more gut-level feeling about the value of communications; the more people he could communicate with the better off he was going to be. He also knew that the better he could communicate, the better he would be able to conduct operations.

Wilson employed variants of this strategy several times. Almost every time he took the organization into a new arena, he would just jump in with his people. If there was heat over a poor quality response, Wilson would ask how he could be expected to do a good job when his people had no experience in that area, did not have the proper equipment, and did not have the money for either training or equipment. By never submitting proposals, but always dealing with the facts of a particular response, Wilson generally avoided the question of why he was operating in that arena in the first place.

There were two principal vehicles for Wilson to get his message
across. The first was media attention, as discussed before. The second was using after-action meetings as a political tool. After-action meetings are common in some governmental agencies, military, and business organizations. After a series of actions are completed, the participants gather to assess how they have done and how things could be improved in the future.

One problem for the Civil Defense was that important outsiders frequently did not know that a particular action was poorly handled. The C. D.'s solution was to invite these outsiders—officials from the Governor's Office and other governmental agencies—to participate in C. D.'s after-action meetings. First, this got outside agencies participating and involved with the Civil Defense's problems. Second, by listening to the participants discuss how, in spite of their best efforts, the response had been less than adequate in many ways, the C. D. got empathy. Wilson was acting on a belief that you cannot always depend on the media to tell everyone how badly you screwed up; sometimes you have to tell them yourself. As long as he could convince people that he was trying hard, in terms of the budget and public relations, he got more mileage out of flaunting his errors than doing well.

Tying In With Other Organizations

The keystone of the early development of the State Civil Defense was the communications system, but the growth of the communication system occurred in a context. There were actions which got people
both inside and outside the organization more involved in Civil Defense activities. The greater involvement stemmed in large part from a generally higher level of activity and a broader range of new responsibilities.

Ties were formed around the Governor's staff. Ostensibly, the Chain of Command ran from the Governor's Office through the Adjutant General to Wilson. General Simon, the Adjutant General, was, however, primarily interested in running the state's National Guard, leaving the Civil Defense to its own devices. The action orientation of the Civil Defense attracted some of the younger men on the Governor's staff who were bored with administration. A principal on the Governor's staff, Gary Lappin, liked the sirens and flashing lights with the Civil Defense and spent a disproportionate amount of time at the C. D. headquarters as the Governor's representative at disaster sites. The upshot of the close relationship which developed between Wilson, Toner, and Lappin was that Wilson had direct access to the Governor, getting the Governor's attention even on relatively minor issues.

More important, because of Lappin's relationship with the Civil Defense, the information concerning inter-organizational conflicts reaching the Governor was couched in terms of the Civil Defense viewpoint. Organizations having only formal access to the Governor had much greater difficulty getting their case heard.

From the Governor's viewpoint, the ascension of the Civil Defense was encouraged. His administration was troubled from the
beginning, and the Civil Defense and its activities were generating a considerable amount of positive media attention. Images of Civil Defense workers trying to alleviate disaster victim's suffering flickered almost weekly on televisions across the state.

Some of the ties with other organizations depended on prior personal relationships. L. B. Taylor, Wilson's mentor, was safety director of the Department of Transportation, which more or less assured close cooperation with DOT. Jack Barleon, the head of the trucking division of the Public Services Division, became interested in the emergency aspects of vehicle movement and tied the PSD closely to the Civil Defense's organization.

Independent of other affairs, one year into Wilson's tenure, the Federal Government had given the state a half million dollar grant over a three-year period to develop an integrated state disaster plan. Thomas Eaton, the new chief planner, had just retired as a colonel from twenty years in the Air Force. Eaton, who had held several mid to high level planning positions in the Air Force, fully agreed with Wilson that the old plans should be scrapped and that the new plans should be built from the ground up. Second, Eaton felt that the plan should focus on developing the interrelationship of the various organizations which would be involved rather than the previous approach which focused on a delineation of the tasks to be performed.

For example, in the older plans, there had been an attempt to spell out what health problems would be likely following a flood and how they would be dealt with. Eaton felt that the function of a
plan was not to spell out how to handle specific problems, but to define what organizations were responsible for different problems and who they would coordinate with. Rather than defining what problems are likely, the plan merely states that all health problems resulting from disasters are the responsibility of the Division of Public Health and that their actions will be coordinated by the Civil Defense.

This shift in the planning strategy changed the pattern of relationships. First, given this approach, the relevant agencies were willing to cooperate with the Civil Defense. Prior to Wilson and Toner, no one had tried to coordinate these agencies for disaster response. In the new plan, no agency was being told how to do its job; it was merely tagged for the responsibility. Most of the agencies, such as Public Health and/or Division of Air and Water Quality, had broad responsibilities and were willing to cooperate with the Civil Defense in defining their responsibilities in times of disaster as long as the Civil Defense did not tell them how to do their jobs.

Wilson and Toner, the operations officer, spent a lot of their time developing working relationships with those in other agencies who would be responding to disaster situations. In practice, these personal relationships were far more important than the formal linkages that existed between the Civil Defense and the other organizations.

Each organization in the state was required to designate an 'emergency service coordinator' to represent that agency in "the pit"
in the Civil Defense Emergency Operations Center. Early experience had shown Wilson and Toner that any recalcitrant agency could sabotage an operation merely by designating an ESC who had little authority within his own organization.

In response, Wilson made it an operating rule that all ESC's must have decision-making authority, but this was easier said than done. Both Wilson and Toner spent large amounts of time convincing key agencies, individually, that their Emergency Services Coordinators be top people in the organization and in a position to commit large amounts of that organization's manpower, equipment, and resources to disaster operations. The stick was that Wilson would drop hints on TV and other public places that certain agencies had not performed well in certain disaster situations. As Philip Mills, the Assistant Director of the Civil Defense, explained, Wilson's goal had never been to get a huge budget or radically increase the size of the Civil Defense, but to get other organizations to commit large amounts of their budget to disaster operations, which would be coordinated by the Civil Defense.

Wilson and Toner's coordinating efforts and Eaton's plan functioned interactively. Rather than specifying what the Civil Defense would do, the plan formalized what the Civil Defense was doing at any point in time. When a certain level of coordination was achieved, it was formalized by writing it into the plan. Few organizations could or cared to object because the plan was nothing more than a formalization of what they were already doing. Deficiencies
or shortcomings in the plan would then be used as the basis for establishing stronger interorganizational relations. The existence of a functional operational plan helped legitimize the Civil Defense, and the plan kept growing.

Close liaison, however, was only partially established with two major types of organizations in the state. The first was the State Emergency Medical Service. By the time Wilson took office, a network of emergency squads, private ambulance companies, and hospitals was well organized and effective throughout the state. Other than tying into their radio network so that C. D. could communicate with them, Wilson left the emergency medical services alone.

Another exception was the State Police. When the Civil Defense had been docile, the State Police had assumed many of the C. D.'s on-scene responsibilities by default. While they never functioned as a coordinating agency directing other organizations, they were "in charge," deciding and conducting such things as how large an evacuation should be, what roads should be closed, when the victims could return home, etc.

The State Police frequently functioned with a lack of finesse. On-scene conflicts broke out frequently between State Policemen and whoever else was there: fire departments, the public service commission, etc. The State Police was the most powerful emergency organization in the state and was generally unpopular with the other emergency organizations.

Eighteen months after his arrival, Wilson went to the Governor, through Gary Lappin, to get some of the on-scene responsibilities
transferred back to the Civil Defense from the State Police. The Governor, perhaps responding to persistent rumors of corruption within the State Police, moved quickly. By Executive Order, he restricted the responsibilities of the State Police to law enforcement on state highways. While they were allowed to keep their Marine Corps look-alike uniforms and the shotguns strapped to the dashes of their cruisers, their effective power had been reduced, in one quick move, to patrolling traffic on the state highways. The Civil Defense was now officially the lead agency in coordinating the state response to disasters, and no other state organization objected or defended the State Police.

People complained about Wilson the entire time he was director. But organized opposition to him was crumbling. In eighteen months, he had gained great power and a record of successes. He had built his own bandwagon, and many were trying to get on board. His largest contribution to the Civil Defense, however, was yet to come—the development of the hazardous materials program.

The Hazardous Materials Program

The hazardous materials program (HM) stemmed from diverse factors, some operational and some administrative. The principal reason for the development of the HM program, however, existed prior to, and independent of, anything to do with dangerous chemicals.

The Civil Defense had become the lead or coordinating state agency in disaster response, yet there was still a sense within the organization that something was lacking. The enthusiasm Wilson had
generated within the organization was for conducting operations, not performing administrative tasks; but, disasters are relatively infrequent making the work sporadic at best. While there were more than enough administrative duties such as inter-organizational disaster planning to work on in the interims, there was considerable confusion and vagueness surrounding each person's job.

Wilson's behavior contributed to this confusion. He had an abhorrence of desk work. In the absence of anything exciting going on, he would be off building political bridges or trying to figure out how to mount a new type of radio in one of the cars. The administrative duties fell to Philip Mills, the Assistant Director. While Mills was quite capable of handling the administration easily, given Wilson's disrespect of anything administrative, he never had the people assigned. Wilson borrowed them. Wilson had no respect for job titles and was as apt to ask the accountant to lay a stretch of communications wire as anyone else. Nor was it unusual to arrive at the emergency operations center, see all the junior personnel sitting around, and find Wilson with all the senior personnel cleaning out a storage building.

Further, Wilson gave no kudos for doing an administrative job well to Mills or anyone else. The net result was that during inactive periods, no one had a regular job; and the routinizing of administrative tasks was not a solution to be welcomed by anyone in the organization except Mills.
The Maple Mountain Incident

During April of Wilson's second year as director, a car crossed the center line on an interstate highway on a mountain high above a town and hit a tank truck loaded with bromine. Both drivers were killed, and the tank truck overturned and ruptured. The bromine was escaping slowly, but steadily; and, as it drifted into the valley, it mixed with the rain to form a red toxic cloud threatening the town of 6,000 people below.

The State Police notified the Civil Defense. Vince Sanders, the radio operator in the Emergency Operations Center, called Mike Toner, the operations officer. Sanders wanted to activate the EOC. Toner, having been awakened in the middle of the night, was not entirely receptive to new ideas and other than using the radio facilities to help other agencies did not think that the Civil Defense should get involved. He felt this was an accident, not a disaster such as a flood or a tornado—it was up to the State Police and local fire department to handle.

Sanders continued to put radio calls through and kept a log. At five in the morning, he called Toner back. The situation was getting more serious. The tank truck was continuing to leak. The Army had been called for advice and had said that there was little that could be done—the truck should be left alone. The toxic cloud was growing and beginning to settle on the town. The agencies on the scene were trying, but no one seemed to know what to do. An evacuation was under way, but not proceeding fast enough. The problems of the evacuation were compounded because traffic on the interstate was
backed up for miles, blocking several of the evacuation routes from the town.

Toner agreed that the EOC should be activated, came in to handle the operation and dispatched Terry Wilson to the scene.

By noon, the Civil Defense operation was well under way, and certain problem areas were emerging.

1. Given that hosing water on the leaking truck only made the cloud more toxic, the fire department did not know what to do.

2. The Army "experts" were not experts.

3. The State Police, local police, and the fire department were all working, but not coordinating with one another. As a consequence, the evacuation of the townspeople was proceeding too slowly and without direction.

4. The State Police had rerouted traffic on the interstate too close to the town, causing traffic jams on the evacuation routes.

5. The trucks routed off the interstate onto rural roads were too heavy, and the roads were breaking up.

6. Both the evacuees and the rerouted traffic were going through the next nearest town, Osgood. Coupled with the influx of media from the other direction, the town had developed a massive traffic jam.

7. No one had thought to put an airplane up, so that while the general location of the toxic cloud was known, its dimensions were not.
8. While Wilson had a master's degree in chemistry and could say what the effects of bromine would be, there was no monitoring equipment to determine the actual toxicity of the cloud.

9. While by noon of the first day there were several people on-scene who were chemically knowledgeable, their knowledge was based on laboratory quantities; no one knew what 12,000 gallons would do under changing weather conditions.

10. There was no provision for monitoring wind speed, direction, or atmospheric conditions in the valley so that the speed, location, or toxicity of the cloud could be forecast beyond guesswork.

The event was resolved without loss of life, not through the actions of the responders, but because the wind shifted, blowing the toxic cloud away from the town.

In the Civil Defense's after-action meeting, consensus emerged on several points. The lack of casualties was due to a change in the weather, not the actions of the responders. Lacking overall coordination, more action had resulted in more chaos, not less. No one knew how to deal with hazardous chemicals. Many of the requirements of the event were similar to those posed by natural disasters—evacuating citizens, rerouting traffic, etc.—and the people at the Civil Defense now perceived it as a disaster.

This was a radical shift in perception. In the past, disasters had been defined by type: floods, earthquakes, tornadoes, forest fires. Mike Toner had originally turned Sander's request for action
down because this was a truck accident, not a disaster. Once on the scene, however, it had become obvious that this was a disaster—only in an event such as a dam collapse are the lives of 6,000 people threatened suddenly and simultaneously.

Further, for a variety of reasons, the Maple Mountain event had fired enthusiasm within the Civil Defense. Wilson, with his degree in chemistry and looking for new arenas to operate in, was more than willing to get involved. Vince Sanders, the radio operator, had been following the growing number of articles in emergency journals on transporting hazardous chemicals and saw this as the time to push the issue at the Civil Defense. A few weeks before Maple Mountain, one of the county Civil Defense Directors had mentioned to Toner in a conversation that 'responding to dangerous chemicals is the coming thing in emergency response.' While Toner had not thought much of it at the time, he could now see the possibilities and supported the idea of getting involved.

The excitement which stemmed from the complexity and urgency posed by chemical disasters also excited Wilson, Toner, Sanders, and others in the Civil Defense.

The Maple Mountain disaster and its implications were talked about within the organization for weeks. Few conversations took place without its mention. Not only were the people in the Civil Defense now used to the operational orientation, they liked it and wanted more. And, as mentioned before, there was a widespread desire for an organizational focus. An arena in which fast action
under dangerous circumstances saved lives was what many had been looking for. As John Roy, the communications officer said, "There's a little bit of cowboy in all of us. We like charging across the state at a hundred miles an hour wearing our chemical suits with the lights flashing and the sirens screaming." They got all these things and more with the hazardous material program.

Months later, in describing how the Civil Defense got involved in the hazardous chemicals arena, the most common description was "after Maple Mountain we realized how important this was." In his typical fashion, Wilson reacted quickly to this opportunity. Sanders was pulled off the radios and given the title Hazardous Materials Coordinator, dividing his time between going to hazardous materials incidents and trying to sell the idea of a hazardous materials program to local officials.

Sanders had collected statistics and had found that there had been nearly 500 incidents in the state in the past year in which chemical and hazardous materials had posed a serious public threat to life or property. These events were such things as truck or train accidents involving hazardous chemicals, toxic leaks at chemical plants, or gas station explosions. Because there had not been a reporting requirement, no one knew the extent or the frequency of the incidents. In addition, until the label hazardous material had been applied, few had seen a relationship between an accidental release of pesticides in a river and a rupture of a chlorine tank at a chemical plant. What for an individual town was an unusual incident was, seen from the state level, a regularly occurring type of
incident at an average rate of one and a half per day.

The activities at the Civil Defense coincided with the sudden emergence at the national level of an awareness of and willingness to support programs concerning hazardous chemicals. Wilson, after some politicking, got the Governor to sign an executive order designating the Civil Defense as the lead agency in dealing with hazardous materials incidents in the state.

The Governor's order legitimated their activities. The next task was to build a program. The immediate problem was deciding what such a program would look like. A second problem was getting support for a participative program when few people at the state or local level were aware that a problem existed in the first place.

Wilson's operating philosophy for starting programs was, as mentioned before, to jump in with both feet. When the consensus decision was reached that the primary focus of the organization was to be the Hazardous Materials Program, there was not a period of textbook planning and training. The first move was to respond to every hazardous materials incident in the state.

In contrast to textbook approaches to planning and implementation which focus on the rational aspects of program implementation, Wilson's approach of jumping in focuses on the emotional and political involvement of the participants. First, rather than promising social benefits like status and glory by jumping in, the Hammer Team members got on television performing a glamorous role. By and large they liked the attention and wanted more. Second, even a
botched response was to some degree a political advantage. The image coming across on the media was, 'We are doing our best at a dangerous job, but we need more equipment and training; we need more money.' Third, in a practical sense, instead of planning for an ill-defined, vague future, by starting out responding to actual incidents, it was frighteningly clear to the Hammer Team members exactly where a response had fallen short, what training was necessary, and provided the necessary motivation to get trained. It is hard to imagine any group of students paying more attention in class.

Yet this strategy did not work as smoothly as it had in the past. No one in the organization besides Wilson and Paul Scott, one of the Civil Defense's four regional coordinators, knew anything about chemicals, nor were there funds to hire experts or send people outside for training. In one early operation, Dennis Major, one of the regional operations officers, borrowed gas masks from the Army. No one knew that these masks were not effective for that particular chemical, and fourteen firemen went to the hospital. In another incident, Sanders slipped in a corrosive and was burned. There were about six people in the Civil Defense who acted as on-scene coordinators for hazardous materials coordination. By the end of the first year most had been injured in one way or another because of the lack of training and lack of proper equipment.

The range and complexity of what the organization had committed itself to was becoming clear. What the people in the Civil Defense thought they were going to do after the Maple Mountain disaster and
what the organization found the situation required after three months experience was very different. No one, including Wilson, had fully appreciated the complexity of the response to chemical hazards. The demands posed by a chemical disaster are frequently far more complex than those posed by natural disasters in terms of the physical, technical, legal, social, and organizational requirements.

Inside the organization, a new elite was forming. Glory in the Civil Defense was going to those who donned the chemical suits. This was hero stuff. Like the Texas fire-fighters who put out fires in the oil fields, Hammer (an acronym for Hazardous Material Emergency Response) team members waded into the maelstrom in their funny suits to close molten valves.

Previously, status within the organization had been based primarily on position. A person could gain status beyond his position by working in one of Wilson's pet projects. This status, however, was derived. If someone was receiving a lot of Wilson's attention, then among the junior personnel, the focal person of Wilson's attention was somehow felt to be more important.

The glory received by those on the "Hammer" teams was not derived. The Hammer team personnel did very dangerous work. All could tell stories of close calls; one was killed. Within the organization the Hammer team personnel became elites, like the Rangers in the Army or the fighter pilots in the Navy or the Air Force. Working for the Civil Defense became a social advantage. The Hammer teams made the news frequently. The process fed on itself. An air of excitement
pervaded the organization. They were doing something; the work was important, dramatic, and received attention. The consensus plan for the development of the Hazardous Material Program was "do more." The way to go, for a younger person in the organization, was to get on a Hammer team and get a chemical suit.

Getting Equipment

The chemical hazard responses demanded sophisticated training and equipment. At first, the only equipment that the responders had was some protective clothing: rubber gloves and boots, hardhat, coveralls, and face shield. If the responders were going to continue to work in proximity to the chemicals, more sophisticated (expensive) equipment would be required. Then there was a need for equipment to deal with the chemicals themselves: specialized wrenches, specialized types of foams so that they could arrive at a scene with everything necessary to handle chemical accidents that the average fire department was not apt to possess.

It was obvious that more equipment was necessary, but this was the first time that anyone in the state, or to their knowledge, in the country, had tried to put together such a package. Each new incident posed new problems, requiring different types of equipment. Completely equipping the response teams would have been an endless task in itself.

The Governor agreed that equipment was necessary and authorized $100,000 to get the program off the ground. In the quiet moments between going on operations or going downtown to the Capitol for
another hearing, Wilson, Toner, and others decided in both formal meetings and conversations over coffee or drinks after work how to spend their $100,000.

The first concrete decision was relatively easy. The severity of an incident is, in large part, a function of how long it takes to get men and equipment on the scene. They would buy six vans and equip them: one for each of the state's four regions and two at the headquarters. Second, they would equip them with two kinds of equipment: a full set of protective equipment for the responder and second, the necessary specialized equipment that was not likely to be present in the local community. This decision was made on straightforward criteria; they wanted to be as effective as they could, and they wanted to keep their people from being hurt.

This decision not only predicated the form of many succeeding decisions, but in large measure dictated the extent and scope of the Civil Defense's involvement in all future operations, changing the form of their relations with other emergency organizations and creating a new class of elite within the organization.

The decision itself was simple; but, as with the communication system, no one fully realized its implications. They had bought the full chemical protective suits because some of their people had been hurt. No one else in the state had them. There were frequent heated arguments on-scene and in various headquarters as to whether the Civil Defense was usurping local authority. But the discussion became moot if the situation required a full protective suit and
the Civil Defense responder was the only person who had one. Similarly, if specialized equipment was necessary, chances were that the Civil Defense was the only organization that had it. Local resentment, chiefly from the fire departments or the local civil defense directors, built against the State Civil Defense and Wilson in particular; but there was no realistic choice except to cooperate.

The Training Program

The training program was developed internally for several reasons. The most important reason was, at the time, such programs did not exist outside. When hazardous materials incidents did occur, the response was seen as the responsibility of the manufacturer or the transporter. Slow response times were taken as a given risk— as something the local population had to adjust to, not as a structural shortcoming in need of correction. Several factors changed this attitude, such as the new environmental laws which now made it illegal for a fire department to dilute a chemical with their fire hoses and let it sink into the ground. Now a chemical had to be isolated, contained, and removed.

Prior to the heightened awareness of hazardous chemicals, the only "experts" in the arena were the manufacturers. There are several important structural differences between manufacturer's safety programs and the type of program being implemented by the Civil Defense. There are thousands of different types of chemicals manufactured in the United States. From the Civil Defense's
standpoint, they had to be able to respond to any type of incident, anywhere in the state.

The chemical industry has run sophisticated chemical safety training programs for years, and the Civil Defense could probably have sent their people for free if they had asked. But responding to chemical hazards on an area rather than a site basis is so different that the training might not have been a good use of time. To give a few examples of the differences, at a chemical plant acquiring expertise is not a problem, the necessary training concerns firefighting techniques. In any given community, the local fire department already knows how to fight fires; it is generally the chemical knowledge that is lacking.

From a planning standpoint, the question is not how many feet of fire hose are necessary, but do you know how to come up with miles of extra hose in the middle of the night? Which local contractors will be willing to loan you three bulldozers with operators and not bother you with payment details until things have settled down? Summing up, the question that a chemical manufacturer has to be able to answer is specific, such as "Can you handle a 12,000 gallon chlorine leak at this location?" In contrast, the question that an area responder faces is "Can you handle a 12,000 gallon leak of any hazardous material or any combination of materials under any condition, at any location within the state?"

For the area responders, the manufacturers' training programs did not address the problems they faced, nor was there anyone who
offered such a training program. The need for training was a hot
topic with Wilson, Toner, and those on the Hammer Teams. What kind
of training was necessary was a subject of debate. The need for a
formal training program was clear; but, in the beginning, there was
no money. Political, technical, and organizational problems impacted
simultaneously and had to be dealt with at the same time. There was
no calling for time out; and, as a consequence, the various efforts
at training got under way in an ad hoc, shotgun style.

There was not a clear distinction between internal and external
training. Few, either inside or outside or the organization, knew
anything about hazardous materials. One of Wilson's first acts
was "to put together a dog and pony show and go around the state
giving it to anyone who could come." It was a simple program, ex-
plaining what hazardous materials were, what they could do (explode,
burn, poison, asphyxiate, etc.), and who to notify. Over time, 'the
dog and pony show' grew into the "A" course, the most basic of four
levels of training in hazardous materials response offered by the
Civil Defense. In the beginning the Hammer Team members were as apt
to be in the audience as were local community responders: police,
fire, civil defense, emergency, and medical personnel. The biggest
difference between the Hammer Team members and the others was that
after a Hammer Team member took the course a couple of times, he
would begin teaching it. Over time, the hazardous materials courses
became more extensive and sophisticated and became the primary formal
training for those both inside and outside the organization.
Inside the organization, the primary training mode was, and is, informal. There was no way to train formally for the thousands of contingencies which could occur. Informally, information was passed in thousands and thousands of little conversations in the halls: "the thing you have to remember about anhydrous ammonia is...," "the next time a crane operator does that, you...,' "...and this guy thought that a little two foot dike would..." The war stories of past chemical operations were told and retold—"...and there we were, when suddenly..."

The atmosphere in the headquarters was very relaxed. Conversations in the hallways or over coffee would go on for hours in the open. Rarely would a senior person break up a bull session and tell the people to get back to work.

These conversations would begin about the same way conversations do anywhere—how the grass was growing or the advantages of steel belted radial tires—but almost always the subject turned to chemicals and technical responses. In a highly technological arena, a specialized culture was being created and transmitted in the same manner that it is in the "primitive" tribes—through the telling and retelling of stories. It is hard to conceive of any training program which could have gone beyond the most basic issues necessary to the response. There were simply too many discrete, tiny pieces of knowledge that a responder had to possess to be effective in the field for any training program, no matter how elaborate, to teach more than the most basic technical or work related skills.
As John Ray, the communications officer, said of working the big console in the operations center, "I could teach a monkey to operate this thing in half an hour. But it takes a year for an intelligent person to learn to use it well." Watching the operators, with varying degrees of experience, work on the console bears out Ray's assessment. New operators learned how to push the buttons and twist the dials in less than a day. Operators with less than one year's experience had trouble stacking calls and assigning priorities when several people were calling in at once. It took years for an operator to learn to use the system with such dispatch that the number of calls being put through even began to approach the design capacity built into the radio system. The complexity faced by the radio operators was small compared with that faced by the Hammer Team members.

Hazardous materials response involves a host of job and personal or social skills. To give an idea of some standard bits of knowledge that an adequate responder should possess in a coordinating role, one should be familiar with the operating structure and processes of: fire departments, police departments, state police, mayor and county commissioners, emergency squads, hospitals, civil defense units, utility companies, chemical and petroleum manufacturers, railroads, trucking lines, highway departments, public service commissions, the Coast Guard, the Army Corps of Engineers, construction companies, state and federal environmental organizations, weather service, and radio and TV stations.

In a technical realm a typical experienced responder not only knew a fair amount about chemicals and what could be anticipated
from different types of accidents but also how to do such things as uncouple overturned tank trucks, operate the valves on a railroad tanker car, how to build dirt dikes with bulldozers, elementary first aid, etc.

These skills were only the rudiments. The most experienced responders such as Wilson, Toner, or Sanders, knew almost all the fire chiefs, police chiefs, EMS coordinators, and local C. D. directors and mayors in the state. It was far easier to coordinate an operation if you knew the people you would be working with in advance of an incident.

The senior staff may not have been conscious of the effect of the informal conversations, but in some sense they must have been aware of it because no one ever interfered with what might seem to an outsider to be rampant on-the-job socializing. People would go for days without doing any "real work." Days could go by without a simple piece of paperwork being done, and the response that they were "too busy" was rarely challenged. This was in sharp contrast to field operations.

There were also subtle rules in how the conversations were held. Most were simply war stories recounting past deeds. The speaker was almost always the central actor. Newcomers were regaled with more stories than old timers, in part because they were more easily impressed, but also because of an unspoken feeling that they needed to hear the stories. Some stories achieved almost classic status—a newcomer would hear them soon after entry. Embedded in a
A richly detailed story of how a response was botched because a local police and fire department got into an on-scene inter-departmental squabble would be important learning points. Through these stories the newcomers would learn that in the state it was not unusual for the police and fire departments to refuse to cooperate with one another and learn some ways to deal with it when it became a problem.

The effect of this informal mode of training was pervasive. While there was no guarantee that any particular person would have been told how to winch a tank truck up a hillside, chances were good that someone on-scene had seen or done it before. In addition, everyone in the organization, responders and administrative personnel alike, took part in the conversations. Radio operators, planners, and supply personnel all had quite extensive knowledge of what the responders did in the field. And as a consequence, radio operators did not get hung up on procedures if they interfered with field operations. The planners created plans derived from field experience. Supply people learned to correctly anticipate much of what was going to be needed. The informal training mode gave much more depth and breadth to the knowledge possessed by everyone than would have occurred if the necessary people had been sent to the requisite training programs.
The Milland Disaster

In the year following the Maple Mountain Disaster the Civil Defense "learned" to deal with the organizational as well as the technical problems posed by chemical disasters. The Milland Disaster will be described briefly to illustrate how the Civil Defense's organized response had changed.

Milland was a rural town. A railroad tank car had exploded following a derailment in a populated area. Fires were out of control, and there were other tank cars which might also explode in the area which was on fire. There had been several deaths and many injuries in the original explosion. Communications were disrupted; and while those outside of Milland knew via radio that there had been a big explosion causing widespread injury and damage, there was no way of knowing exactly what had happened or the extent of damage. Lacking information, emergency equipment from all over the state converged on Milland.

The aspect of the response which is of interest here is the organizing strategy which the Civil Defense employed which was accomplished without prior planning. The response consisted of three organizing phases: controlling the impacted area, controlling the resource flow to the impacted area, and reestablishing order in town.

The first Civil Defense responder to the scene was Paul Scott, an area coordinator. Scott immediately went to the impact area, the area which was on fire. He placed a guard on the access road to establish control over resources and then turned his attention to coordinating the fire fighting efforts.
Phillip Mills, the Assistant Director, was the second Civil Defense person on the scene. After talking briefly with Scott, he strengthened the cordon of the impact area to further control the flow of emergency personnel onto the scene. Mills then set up an emergency operations center in the town hall a few blocks away. At this point Mills' primary tasks were to control the flow of resources into the impact area and to set up a communications system. Mills concentrated his efforts on maintaining control and order in the impact area in order to allow Paul Scott to concentrate solely on the problems posed by the fires.

What Mills saw from the operations center was a steady stream of ambulances and fire trucks arriving from as far as two states away, all blocking the main street with their lights still flashing. The town was being over-policed by other police departments, sheriffs' departments, rescue squads, and state police. The state and national press were arriving in carloads, all demanding interviews. Politicians of all types from senators and the Governor on down called or arrived in person to offer assistance. The fire trucks on-scene were running out of gas, and all of the gas stations were closed and locked; and even when gas and diesel fuel were found, it was a problem to figure out how to get it safely into the burning area to refuel the trucks. Governmental agencies, investigatory agencies, university research teams, and observers from police and fire professional associations were all arriving so that they could 'assess' the situation.

During this time problems were dealt with sequentially starting
with those affecting operations in the impact area and working outward to the periphery as Civil Defense personnel became available.

Re-Organizing the Response

About seven hours after the explosion the fires were contained but still threatening the remaining tank cars. Up to that time Wilson had been building the response organization. Personnel were given tasks as they arrived. For example, when Tom Eaton got to Milland, he was only told to "straighten things out up at the hospital." Seven hours after the explosion, people were in their respective positions; and the communications system had been built to be controlled through the operations center. It was only at this time that Wilson went to the Mayor of Milland and asked him to declare a state of emergency.

It may seem paradoxical to declare a state of emergency only after the response had been organized and the threats were beginning to diminish. In actuality Wilson was re-organizing the response. By having the mayor declare a state of emergency, official responsibility for the response passed to the Civil Defense. The organized response had been built sequentially, and Wilson felt it was now time to integrate the actions. Significantly Wilson did not attempt to begin to integrate the response until his people were in place, the communications system built, and the situation pretty well in hand. It is somewhat ironic that Wilson's having a state of emergency declared was a signal to the Civil Defense personnel that the emergency phase of the operation was over. Tasks were then reorganized and redefined
and the response organization in Milland functioned on an integrated hierarchical basis.

Comparing the form and the underlying strategy of the Civil Defense's organization at Milland with that at Maple Mountain, it is possible to see some of what was learned over the intervening year. First, in spite of the fact that the response was constructed on-scene, few factors were overlooked as they had been at Maple Mountain. The Civil Defense was far better at anticipating what the demands and problems would be. Second, the Civil Defense workers had learned to operate independently—for the most part—correctly anticipating what the others would be doing and anticipating what they would need. Last, it is interesting to note that Wilson did not attempt to integrate the response until his people were in place, the communication system was built, and he had developed a picture in his mind of the overall situation. Until the threat began to diminish, he did not need formal authority. People cooperated because of the emergency. And, as one of the responders said, "we've learned to not try to control things until you have the means."

The Center City Flood

The Center City flood was relatively minor, but is included here because it offers a contrast to the relative effectiveness of the Milland disaster and shows why it is frequently very difficult to get even simple tasks accomplished when the arena is unfamiliar and the environment is not propitious. Second, what material is presented is a synopsis of a longer interview with the chief planner, Tom Eaton. I
have left it in narrative form because it shows the types of issues he was concerned with and how he thought about them.

In May of the year following the Milland disaster, Center City had several days of rain. Creeks rose, and there was flooding in many separate areas of the city. The event lacked the drama of a flood which inundates an entire area as when the Mississippi or Ohio Rivers slip their banks, but for the 400 families forced out of their homes by flooding creeks the effects were the same.

In the year that had passed since Milland, the Civil Defense had been active. The previous summer, the C. D. had been involved in watching over a major city during a police and fire strike. This event marked the end of the charmed life which both Wilson and the Civil Defense, as a whole, had enjoyed. Now Wilson was under pressure from both within and outside the organization. In addition, the incumbent political party had been voted out in the November elections; and no one in the Civil Defense had any close ties downtown anymore.

In the meantime, the Federal Government had been trying to get out of the disaster temporary housing business, passing the responsibility on to the state. Whatever the reasons at the Federal level, the feeling at the state level was that the state was having a bag of worms dumped on it. There was a widespread feeling that the agency that administered the temporary housing programs for disaster victims was in a no-win situation. As Tom Eaton, the chief planner, put it, "Look, rich people have enough money not to live in a flood plain. So it's gonna be some dirt-ball farmer who gets flooded. So you give
him a nice trailer until he rebuilds, right? And what happens? The first time he's ever had indoor plumbing much less an air conditioner. He's not stupid. He's not going to move out. So there you end up, after all the time limits have expired, standing there on television having the sherrif evict him. And the sheriff is busy explaining that he's just following orders--your orders."

Five months before the Center City flood, the state agencies knew that disaster housing was now a state responsibility. In spite of the fact that it would bring federal dollars, each relevant state agency was trying to have another agency tagged for the primary responsibility. Since the title of the program was Disaster Housing, it was the Civil Defense and the Department of Housing which were trying the hardest to have it given to the other. Two weeks before the Center City flood, the planning division of the Governor's office agreed to study the issue, and the indications were that the program would go to the Department of Housing. The C. D. planners breathed a sigh of relief.

Then the Center City flood occurred. While from a disaster standpoint it was not a catastrophic event, by the end of the flood there were 400 homeless families. It became a disaster in the sense that there was no plan for taking care of them. Since the situation occurred under emergency conditions, the Governor gave the responsibility to the Civil Defense.

Wilson was never interested in administrative matters, which this would be. The planning section was not busy, so the task was given to Eaton and his assistant, Gary Davis. The staff was to be
borrowed from other state agencies and departments and eventually numbered forty.

Much of the event can be understood as a continued tension between spending the available time getting organized versus getting the job done. As Eaton recounted the events, "The hardest part was getting started. We tried bunches of times to get an organizational chart put together—version after version—and for one reason or another none worked. The main problem was the program (housing) is intricate, and you need experts to do it well. We were not sure how to put the organization together because we were not sure what we were supposed to do or who we were supposed to work with.

'The organization was growing, and the more people you have the more organizational problems you will have. Pretty soon we were forced to go to a bureaucratic solution. It was the only way we could work. Jesus, we put time in.

'We told the other agencies we didn't want the clerks and jerks, but they gave them to us anyway. So the people they gave us couldn't make decisions on their own, they had to call back and get permission for everything. Then they'd be spending half their time on their regular jobs—they weren't supposed to do that, but they did. The turnover was tremendous. You'd get to work one morning and find that three people had been called back to their home organization; and there you'd be, having to train the three substitutes from scratch again. If we got anybody good, it wasn't a week before they wanted them back again.
"The Governor went on TV and said he was appointing a Blue Ribbon Committee to take care of the red tape—General Simon, Terry Wilson, and myself. We never met once, and boy—did we have red tape.

"Before at the Fed level, HUD (Housing and Urban Development) ran temporary housing for seven or eight years; and each time they worked the program there were more forms. Then early this year, the Federal Disaster Assistance Administration got the task and passed it on to the states. So far, it's worked pretty good in some other states. What killed us was this state's policies and procedures. We had a hell of a time with those people...

"On the front end, the Feds had suggested that we get the Governor to issue a proclamation waiving rules and procedures, but we never got to first base with it because nobody downtown would agree. They did it in other states, but not here. Remember the 'Blue Ribbon Committee' that never met?

"This would have been a good time to have done a lot of things. Wilson could have used this as a case for getting the C. D. pulled out of the military department, but he was always working on some hazardous materials problem.

"We already had a contract with the State Planning Commission to make up a plan for temporary housing for us. I called Billy Speere up at Planning and told him to come on down here and watch what was happening so the plan could be drawn up right. We'd identified the tasks; and if he'd come down here, he could see how it ought to be implemented. Billy said this was a good idea. But he never came out
to observe. The only time he came out, it was to solve a specific problem. So then he turns in the plan and it's no good. It's only a description of the problems that I told him about in a memo and on the phone, written up in fancy language. Hell, that memo wasn't a plan. So we all have a meeting; and Billy says the reason he wrote it that way is so he could see what the Feds wanted when he submitted the plan. But, that is the plan. If we accept it, they're done with the job. Wilson says we just won’t pay the Planning Commission—we'll see.

"We tried to work within the system. Wilson wanted to call out the wolves and to hell with the system—I don't know...maybe he's right. He's always in trouble, but we sure didn't make the system work. We're physically separated from the corridors of power and don't have access. As soon as this is over, we'll go back to Wilson's way of operating. When the Fed money runs out, everybody will go back to their organizations and the next time we'll have to start from scratch again just like we hadn't learned anything.

"I don't know. We got the job done, I guess. But we had fifty people working for us. That was manageable, but what if the next time we have 200? If housing stops tomorrow, all these people will disappear. I don't think it's right to fund for contingency purposes. In the past the C. D.'s disaster assistance section helped communities do public things like rebuild roads and bridges. Now we do individual relief. That's a hell of a lot harder and we just don't have the people to do it. We need six full-time positions and a secretary.
Maybe we can get it in the budget next year. These people would be
supervisors in a disaster; and during peacetime, they could develop
all the necessary staff. The Planning Commission should have tagged
people for tasks, but they didn't, so I don't know...

"Geez, it was hard. It's hard to work in an area in which there
is no determination.

"When you get a program going, there's always a few token cases
to be publicized. The Governor and everybody go on TV and give relief
checks early for the media. Then everybody else wants to know why
they didn't get their money. Then if you start seeing people individu­
al­ly, you don't get the bigger things done.

"I would have liked to have set up things differently. The
organizational chart was to set up for command and control, but we all
had our desks in the same room; and as long as everybody could see me,
they'd come to me with their questions. I sat around educating the
people and their supervisors, too. That changed when we got private
offices for the top people--things worked better.

"We were busy. Hell, three months of seven days a week, twelve
hours a day. Then you know what? The exempt personnel--the super­
visors and professionals couldn't get overtime. The ones from other
agencies could because they weren't working at their regular jobs.
The C. D. people were mad. They were real mad." Wilson put the C. D.
people in for overtime, but nothing came of it because nobody pleaded
their case.

"You know, though? It's kind of exhilarating. You get blasting
with something and you get real tired, then you get your second wind. You get more energy, and you are not as tired. In the beginning, even if you got eight hours sleep, you'd still be dragging. Then after awhile you feel good and you come in refreshed. It was kind of fun that way. Exciting.

"I bitch about the people, but they were good. I was really amazed at the talent we've got in the state government. They could run things better than their bosses. You know what the problem is? They come from B-B stacking organizations. Their bosses are B-B stackers, and these people will only get promoted if they are good B-B stackers. They just couldn't see the urgency of going overtime.

"And it's hard trying to work in your own backyard. If a disaster occurs somewhere else, you go and set up somewhere else. You stay at a motel and everybody understands. But when it's here, you operate out of your office. And your wives don't understand. You're working from seven in the morning until 10:00 p.m. All you do is sleep at home, and everything at home is disrupted. The people at C. D. keep calling you about regular things on your normal job. And then you are working on something and right in the middle, somebody asks you if he can go home early to get his car registered.

"I don't know..."

The End of Charm: The Decline of Terry Wilson

The first two to three years of Wilson's directorship had been ones of growth and increased stature for the organization. For Wilson personally it had been a time of a developing aura of invulnerability
to those outside the organization and one of a growing intense loyalty for him from those inside the organization. Yet Wilson's actions offended and irritated many people outside the organization, and many fervently hoped for his fall.

A large part of Wilson's apparent invulnerability must be attributed to the solid front presented by all of the loyal employees to any outside attack; they were proud of the organization and of Wilson. Wilson was protected by the rapidity with which those inside would close ranks against any outside attack. Inside the organization Wilson was held in awe. For all of Wilson's abrupt behavior and inattention to administrative detail, the feeling was clear—before Wilson the organization had been nothing. Now the organization was something important, and those within it felt both a new sense of self-respect and respect from others; and it was directly due to Terry Wilson. Wilson faults and shortcomings became virtues—"we did it all without any administration."

Trouble Begins

Pressures, however, were building within as the effects of lack of concern for administrative matters began to accumulate. Central was the lack of routine. Events which long ago should have evolved into routine, programmed affairs still created emergencies.

Personnel issues were also coming to the fore. For individuals, especially the younger ones, the problem of being part of a small organization with very little turnover was beginning to be problematic; there were very few promotions. The persistent complaints of
the wives and families about the amount of time the men were spending away from home began to take their toll.

A common defense was to reverse the issue among themselves as a kind of a brag. "We're so busy we never see our families" was a widespread statement, each man saying it and receiving support from the others. It was difficult not to hold that view, and the message was clear—organizational demands take precedence over all others. It was not a hard position to support in an organization concerned with saving lives and property.

Grousing about problems and discomforts was standard, but certain types of complaints were taboo. For example, one could complain about any of Wilson's actions which had caused problems in these bull sessions; but questioning Wilson's capacity to lead the organization was politically unwise. Wilson made no attempt to stem any criticism of himself and did not seem to particularly care if it existed. Rather, forbidding these topics stemmed from a feeling that loyalty to the organization was critically important, and there were certain forms of criticism and complaints which would open the speaker's loyalty to question.

The St. Mark Police and Fire Strike

The Civil Defense's role in the St. Mark strike opened the crack in the organization which ultimately led to Wilson's replacement. Five months after the Milland disaster, Wilson was bored and looking for a new arena to enter. This time the desire to leap into new territories was not shared by many in the Civil Defense. There was a
desire for consolidation of existing programs. For example, while the Civil Defense was quite effective in the hazardous materials realm, there was still a wild quality to the responses which many of the Hammer teams would have liked to have seen tamed. Similar feelings existed with those working in the communications, planning, and administrative sections.

Earlier Wilson and Mike Toner, the operations officer, had made preparations to have the Civil Defense assist the National Guard in a threatened strike of prison guards, but the guards settled their contract dispute with the State before a strike occurred. Now, five months after Milland, the police and firemen in St. Mark, the state's largest city, were threatening to strike simultaneously during the middle of the summer—the time of the greatest fire hazard and the time of the highest potential for racial unrest.

The police and firemen, semi-independently, had already voted to strike; and their contracts had already expired, but part of their bargaining strategy was to keep both the city and state guessing as to when the strike would actually occur. The guessing as to the time of the strike created many problems for the State, chief among them the question of when to mobilize the National Guard, pulling hundreds of men off their civilian jobs and putting them on the state payroll. This was an expensive proposition, especially if the Guard were mobilized prematurely, sitting around for weeks before the strike occurred. On the other hand, it was imperative that the Guard be capable of arriving quickly lest the city be left completely
unprotected at a time when such an action could precipitate a race riot.

Wilson stepped in, offering to take the State Civil Defense to St. Mark to assist the advance elements of the National Guard in the preparations. While the moves and counter-moves of the strike itself are interesting, the concern here is on the strike's effect on the Civil Defense responders.

Wilson took twenty-three people with him to St. Mark—almost half of the C. D.'s personnel and almost all of the operational personnel. Those left at Center City were primarily administrative personnel. Three factors were important. First, the St. Mark operation, for various people, lasted between two and three weeks—for most of them it was three weeks of sitting in motel rooms with nothing to do, away from their families with vacations and other outings cancelled.

Second, a meaningful role for the Civil Defense never developed. During the strike the Civil Defense's communications system was useful, and the helicopters did spot fires before they spread; but frequently the spotting efforts were a competition between the crews of the helicopters from the Civil Defense, National Guard, and other organizations which made people question whether any one of them could not have performed the job adequately.

In terms of long-range effects, however, the third factor was the most serious. While all the operational personnel were in St. Mark, there was no way to respond to disasters elsewhere in the state. The fact that nothing happened was subtly damaging.
During the time the Civil Defense was in St. Mark there were no major disasters elsewhere. The fact that the local communities and the local civil defenses handled the small events which did occur led the state responders to begin to ask themselves why they responded to so many events. The complete devotion of energy to the Civil Defense to the exclusion of all other obligations was justified as long as their services were needed. But here was evidence that the small events and incidents, the ones that occupied the bulk of their time, were within the capacity of the local communities to handle.

Wilson and Toner never fully appreciated the effect of the St. Mark operation. For one thing, as the top people in the organization they had meaningful, occupying jobs during the operation and, as a consequence, failed to notice that the boredom on this operation was qualitatively different than the routine inactivity that was a normal part of any operation. This time the men felt that their presence was not necessary.

While neither Wilson nor Toner ever fully appreciated the effect that St. Mark had on the personnel, Toner did pick up on the lack of any negative consequences of the Civil Defense's absence in the small events that occurred around the state during the St. Mark operation. During the following year, Mike Toner gradually turned over more responsibilities to subordinates—especially in operations and communications.

Just as many small factors intertwined, cumulatively they contributed to the Civil Defense's decline. Most important, it lost its synergistic momentum. For example, most of the radio operators were
now experienced. In the past, Wilson or Toner had taken over the operation of the radio console in the Emergency Operations Center during emergencies. Now, as the various operators proved themselves, they were allowed to remain on the console. Now Wilson and Toner came in from home less often for minor events.

Simultaneously, the goal of letting the communities handle as much as they could became less lip service and more a reality. In the space of a year, the number of hazardous materials responses more than halved for a number of reasons—the training programs for communities were paying off, preventive measures were becoming more effective, the number of hazardous materials incidents was declining, and, most important in terms of its effect on the organization, responsibility for conducting operations was being delegated downward. Now the magnitude of an event necessary for the whole organization to be mobilized increased considerably.

While the responders enjoyed their increased autonomy and responsibility during operations, this was more than offset by the dramatic decrease in the amount of excitement and sense of urgency that the events now generated. Without regard to the event itself, when the organization fully mobilized for an event, the mobilization created excitement—the immediate imposition of an electric sense of purpose. The surfaces in the radio room were immediately stripped of everything superfluous and replaced with the emergency procedure manuals; there was a sudden increase in radio communication coupled with the cessation of all unnecessary chatter; and the responders
received their instructions in their boots and orange field suits, then left the center with sirens blaring. In the past, the orange suits, the crackle of the radio, the blaring sirens, all gave evidence on a daily basis of the importance of their work. Now, on most days, these were gone.

The loyalty and affection for the organization still remained at a high level; but now all of the administrative and personnel over­sights, which had been ignored in the past, gained importance. The lack of promotions became a more serious issue and cleavages began to appear among groups within the organization. The proud declamation, "Look at how hard we work, for what little pay they give us, because we are a family" turned into a complaint, "Why should I work so hard if no one is going to work to improve my pay." The complaints were there. It was an important shift because they now reflected on Wilson's capacities as the Director. However, while, as individuals, most made the complaint, the complaints merely existed as issues. They were not directed at anyone in particular.

The Split

But the complaints festered. The interpretation shifted from "We need more money and promotions," to a more personal "Wilson doesn't care about my welfare." The details of the conflict which led to Wilson's replacement cannot be given without violating confidences; however, an overall description of the main events may.

Toner, who was hardworking and well liked by everyone, got into a discussion over procedures in front of others with Wilson, who at
one point made an overly curt reply to Toner. The discussion turned into an argument and ended in a permanent split between the two men. The argument might have remained at that level were it not for all the discontent which existed.

The complaints which had previously been over issues and had created tension now had a focus and almost immediately the Civil Defense split into two camps—those whose loyalties were with Toner and those who were behind Wilson. Ironically, if someone had asked three months earlier who was loyal to Wilson and who to Toner, few in the organization would even had understood the question. In the next few weeks two people resigned, protesting loudly and publically. From an outsider's perspective, it was as if the organization—moving strongly forward—had suddenly exploded.

While both Wilson and Toner had their separate followings, neither wanted nor encouraged the fighting between camps. The organization which everyone had worked so hard to build was coming apart, and all were deeply affected. The rapidity and extent of the explosion surprised everyone. No one really understood what was happening. Each group hoped that the leader of the other group would be the one to leave; and, in anticipation of that, there was some jockeying for the positions which would be available if that occurred.

The division within the organization eroded much of the support that Terry Wilson needed against others in state government. A major budget cut which would have eliminated many of the services that had been built up—such as the 24-hour communications center, a large
portion of the hazardous materials program, and the elimination of several jobs—was averted only at the last minute. In part, the crisis aspect of the proposed budget cut was due to the fact that Wilson, Toner, and others were preoccupied during this time, and the campaign to get the cuts removed only began seriously a few days before the legislature was to vote on the issue.

Three-way negotiations between General Simon, the Adjutant General, Terry Wilson, and Mike Toner trying to find an accommodation went on sporadically for three months. Things cooled off inside the organization as people waited for the outcome. From within the organization the outlook changed frequently. At times it looked as if Toner would leave. At other times it looked as if Wilson would leave, and Toner would take over the Director's position; and still other times it appeared that things would get patched up or that the uneasy truce would continue indefinitely.

Meanwhile almost all work within the Civil Defense stopped. There seemed to be little point in doing anything with the exception of responding to emergencies and virtually no point in starting anything new. Yet at the same time, most felt a need to preserve a sense of normalcy, so meetings were called, appointments made, and all the other trappings of work continued; but most were just going through the motions of doing their jobs.

Finally after three months, General Simon let the other shoe fall. Wilson announced his resignation, and Simon appointed a recently retired Army colonel with a record as an able administrator as the
new Director. Mike Toner would continue as the operations officer.

Terry Wilson was very hurt by the outcome. He had built the organization from scratch, and the people had turned on him. He simply did not understand why so many people inside the organization were mad at him.

The Civil Defense has been described in narrative fashion in terms of phases: Wilson's arrival, building the communications system, the hazardous materials program, the Milland disaster, and last, Terry Wilson's decline. The phases are more than convenient ways to describe the organization's history. First, each phase presented a different type of problem for the organizational members to deal with. Second, the phases represent the way in which the participants understood the organization.

The phases can be restated in terms of the problems faced by the organization. The first phase describes the original "steady state" and forms the context for later events. The major problem in the second phase was not Terry Wilson per se, but the changes in the goals, tasks, and interpersonal relations caused by his actions. In the second phase when the communications system was being built, again it wasn't the communications system per se which caused difficulties for the organizational member, it was changes in the type of activity the creation of the system induced. Building the system required a different pattern of interorganizational relations than in the past. Not only did this include interacting with different individuals in the Civil Defense's environment, but the actions caused the participants
to view the relations in a different light—now they wanted something from the others. The relationships were no longer passive and service oriented. The new set of actions demanded things from others and was threatening the equilibrium of the older pattern of interorganizational relations. Moving through the five phases it is possible to see how internal changes in the Civil Defense altered the interorganizational relations and how changes in the interorganizational realm caused changes internally.

But to understand how the gross changes affected the relationship between the organization and its environment, it is necessary to go beyond the forces which the changes induced to a level of examination which looks at how the individuals perceived the changes. The individuals involved reacted not to the forces themselves, but on the basis of their interpretation of what was occurring. The participants did not have a distanced, objective view of the situation. They were living out a major portion of their lives within the organization. Changes in the organization affected them personally. Their individual interpretations of what was occurring influenced their behavior and the particular form of the organization outcomes cannot be adequately understood apart from these interpretations and their subsequent impact on behavior. In this respect, the shifts in phases were defined, not only by changes in the environment, but by shifts in the way the individuals perceived the organization—their images—as well.
CHAPTER IV

The Civil Defense As An Image Formation Process

This chapter will examine four aspects of the Civil Defense, how consensus was formed, individual differences and the effects of two different types of information processing, bottom-up and top-down. The heart of the issue that is being addressed is an examination of underlying organizational processes which have the effect of organizing behavior in the relative absence of formal or overt attempts at control.

Wilson disliked administrative activity, and there was relatively little reward within the Civil Defense for handling routine tasks well. The energy of the organization focused on the dramatic. In spite of the lack of formal effort at control, the behaviors were organized—the actions of one person came to fit with the actions of others towards the production of a joint product. The emergence of organized behavior without formal controls has been noted before in disaster situations (Thompson, 1967; Dynes, 1974). What this suggests is that people have models of organizations and organized behavior in their heads and individually can adjust their behaviors in such a way that a collective effort is organized.

The underlying organizing process referred to here is the mental models of the organization possessed by each person. The section on how consensus was formed is an attempt to partially describe how the
participants came to hold similar views of the organization through talking and storytelling. The second section attempts to describe how four individuals held different views of the organization based upon their different individual histories and how these differences affected their involvement and attachment to the organization. The final two sections on bottom-up and top-down information processing attempt to show how the two different modes of learning affect subsequent behavior and how they interact. Together these topics represent an attempt to explain how, in Schelling's (1978) terms, micro-motives aggregate into macro behavior or how small behaviors can form into an organized whole in the relative absence of formal or conscious attempts at organizing or controlling.

The Individual and Consensus

The individual encountering a new situation has to find what cues signal situations in which rewards are possible and what behaviors will lead to those rewards. The field in which all of this is taking place is not stable. It is active and constantly changing. Behaviors which lead to rewards one time may not in the future, so the participants have to develop their own models of change.

Man has a relatively high capacity as a top-down information processor (Danks and Glucksberger, 1980). This capacity to discern underlying patterns of regularity stems from the hierarchic structure of schema. Stimuli have to be "recognized" to access information from long-term memory. This has important consequences for organizational learning.
If this model is correct, it implies that when an individual encounters an unfamiliar situation, he will compare it to prior situations or previously learned behavioral chains. Abelson (1976) has defined scripts as "coherent sequences of events expected by the individual, involving him either as participant or observer." In other words, the individual actively compares his expected script to the situation as he observes it occurring.

Individuals in the Civil Defense had different backgrounds and, as a consequence of this and different life situations, each wanted different things from the organization. Each person's interest in this respect was egocentric, governing both the rewards which were desired and how the situation would be perceived. If joint action is to be possible, there have to be processes by which individuals achieve a shared image of the situation.

**Consensus Formation Processes**

As Garfinkel (1967) has demonstrated, "taken for granted meanings" frequently play an important role in interaction. The problem this poses for an observer is that many important aspects of an on-going series of actions are not apparent because of the meanings which are taken-for-granted by the participants; and since the problems have been jointly solved by the participants some time in the past, the observer never sees that aspect of behavior as problematic.

The taken-for-granted meanings can be discerned at the time when they are problematic for the participants— that is, at a time
prior to the existence of a consensus and at times when the consensus is disrupted by external factors. The next section is concerned with the creation of consensus through the creation of the organizational saga. The following section adds to the view by examining how the decline of Wilson as director affected the taken-for-granted meanings.

The Organizational Saga

"An organizational saga is a collective understanding of a unique accomplishment based on historical exploits of a formal organization, offering strong normative bonds within and outside the organization. Believers give loyalty to the organization and take pride and identity from it. A saga begins as strong purpose, introduced by a man (or small group) with a mission, and is fulfilled as it is embodied in organizational practices and the values of dominant organizational cadres, usually taking decades to develop." (Clark, 1972: 178)

It is through the saga, according to Clark, that participants label stages of the organization's development and add affect and emotional tones, turning a formal place into what can be for the participants, a beloved institution.

Closely allied to the concept of an organizational saga is Mitroff and Kilman's (1976) concept of the organizational myth. Humans are born storytellers and use stories about organizations to give meaning and order. While both Clark's and Mitroff and Kilman's concepts are relevent, throughout this work the organizational saga will be
viewed as an episodic account of the organization held by the participants which is acquired through the telling and retelling of stories which serve to add affect and a sense of historical continuity to the participants' understanding of the organization.

The reason for beginning the analysis of the Civil Defense by focusing on the concept of the Civil Defense saga is if the members develop a collective image of the organization, such a concept could potentially organize the behaviors of the participants in the absence of direction of formal control.

While I was familiar with the concepts of organizational myths and sagas prior to conducting the study, neither was the focus originally. During the data collection phase, I started off most interviews with the question, "Tell me about the Civil Defense and your involvement with it." I noticed early in the interview process I almost always got the same response. Generally, the interviewee would explain the Civil Defense to me and then tell me about his personal involvement. The description would almost always be the same and I had to fight off the boredom of hearing the story for the umpteenth time in order to get to the part where the person told me about his own experiences. Because I viewed the hearing and rehearing of "the story of the organization" as one of the hazards of open-ended interviewing, it took me a long time to realize that this was more than a methodological issue and was highly related to the substance of the study. The participants had somehow arrived at the same view of the Civil Defense. I began to look into how they had done it.
Wilson had been with the Civil Defense for over a year when I arrived, so I was able to observe only part of the saga formation process. In the next section on how the saga was formed, I observed the later stages of the process. I had to ask the participants about the earlier stages asking them to remember what they had talked about, what their concerns had been at the time, etc. I found it especially helpful to ask this type of question in groups and to ask for a response in narrative form. As a consequence, I feel that the description presented in the next section is a fairly accurate representation of what occurred, but the product must be seen as tentative because I had to interview others about the earlier stages of the saga's formation.

How the Saga Developed

When Terry Wilson arrived in the Civil Defense, he came with a well-known reputation as an activist. Most felt that his appointment as Director would change the organization, but it was not at all clear what he would do, how he would do it, or how these changes would affect each individual.

These factors created uncertainty, and Wilson's every move was scrutinized, generating many conversations as to how his behavior was to be interpreted. When Wilson promoted Mike Toner to operations officer over several more senior people, the action generated conversation at every level of the organization. The conversations concerned more than the effects of the disregard of seniority by promoting the action-oriented Toner. Each individual was trying to
figure out the meaning of the act as it affected him personally—was it youth, personality, or an action orientation that was being promoted? Wilson's other actions were discussed and scrutinized, looking for a pattern. "Wilson was driving around the state again today." "He's never at the headquarters when you need him." "Terry was scrounging around for radios again." "Last week he spent one whole morning talking to Mike Toner about how the Air Force conducts search and rescue operations." "The audit came in today, and he put it in his desk drawer without even looking at it."

As these observations spread through the Civil Defense, a selective filtering occurred. As time passed, certain types of stories, those which seemed to indicate emerging themes, were repeated. Certain categories of stories formed and new stories were analyzed in light of a theme or an emerging image. As a pattern emerged, certain stories carried a message structuring an image of how Wilson's behavior was to be interpreted.

A high proportion of the stories related to Wilson's effect on people in the organization. A story which indicated who Terry was paying attention to and who was being overlooked was almost sure to be repeated. A collection of these stories emerged which served as the comparison basis for new stories. As themes emerged, the collection of stories decreased in size. In the telling, retelling, and analyzing, a new collective story was being created by consensus which summarized the dominant themes giving meaning to Wilson's actions.
The story's theme was how Wilson spent almost all of his time with line personnel working on operational matters and how all of the administrative heads were being virtually ignored.

The composite story emerged through a consensus. In the process of trying to ascribe meaning to Wilson's actions, one person would tell about something Wilson had done. Listeners, if they disagreed, would generally counter with another story in which the implication disconfirmed that of the first. The facts were being discussed and evaluated through stories. Gradually some stories were taken to be more meaningful and informative than others. Stories that did not elicit a counter story tended to be repeated.

At the same time, the pool of accepted stories gained wider acceptance. A second type of evaluation took place concerning which of the accepted stories belonged together, and in the telling and retelling there was a fitting and tailoring of stories. The stories began to stabilize both in the inclusion and order of presentation. Eventually, there was a consensus as to what constituted the proper way to tell the story; and it is this version of the story which becomes part of the organizational saga.

The saga changed as time passed. New events had to be incorporated. If the new actions represented a break with the past, it could become a major story in the organizational saga. For example, the hazardous-materials program became a story in itself—a major component of the saga—as the hazardous-materials program became the central defining characteristic of the Civil Defense and the story of
the program became the center story of the saga.

Meanwhile, as the story of Wilson's initial actions was becoming history, it changed in two ways. First, Wilson's behavior was not a mystery any more and did not require extensive explanation, but what the hazardous-materials program was and was to become was an issue involving debate and uncertainty. This change affected the story of Wilson's early actions in two separate but related ways. The story was abbreviated, focusing on the aspects most highly related to the development of the hazardous-materials program. In this respect, the story was being revised to reflect the present. In another way, however, the early story was becoming more accurate. By now, the participants had two years of experience with Terry Wilson; and the story of the early days was focusing on the aspects of Wilson's personality which best predicted his behavior. So while the story of the early days was becoming more stylized, it was also becoming, as a product of experience, more acute in its distinctions about Wilson's personality. Allport and Postman's (1945) studies of rumors yielded similar conclusions. They found that rumors become: (1) "leveled" as they are transmitted, (2) shortened, and (3) that the selection of significant details become more pronounced with repetition (Allport and Postman, 1945; Lauer and Handel, 1977).

The Functions of the Saga

The overall effect was that while the facts about the early days were becoming less accurate as time passed, the image of both Wilson
and the Civil Defense as a base for structuring an understanding of the organization was improving. The organizational saga was becoming a better or more effective way of acquiring an image of the Civil Defense.

The saga was not only used as a way of explaining the organization to outsiders but was also the prime way that each individual understood how he fit into the organization, and, as a result, became a very important guide for action.

The saga existed not so much as a collection of facts about the organization, but as a refined and tested image of the organization. It provided each individual with an accurate image for structuring his own behavior within the Civil Defense. As opposed to a collection of facts, the organizational saga was easily remembered. Newcomers could grasp it quickly and rapidly adjust their behavior to that defined by the rest of the organization as desirable. By understanding the image of the organization's history, newcomers rapidly adjusted their behavior in line with the current set of expectations and demands of the Civil Defense.

The second major function of the organizational saga was to provide a means of organizing behavior in the absence of formal structuring. The saga, in this respect, provides a way of understanding how the Civil Defense could function as a tightly organized group even though very little formal effort was spent on organizing.

The saga reflects the mental model (a schema) that the individual has of the organization. Organized action is possible if each
person holds the same schema of the organization even in the absence of organizing acts. Independent but coordinated action is possible if each participant holds the same image of what is desired and can adjust his individual contribution to the group product. Such a process is not mysterious; society works in much the same way. As Berger (1966) points out, a society can be said to exist if everyone believes it does and bases their actions on that image even in the absence of an overall controlling body.

In asking people about the organization, a strong relationship between the organizational saga, the work group story, and the individual story emerged. The correspondence between the three specified to the individual how he fit into the organization and defined the extent to which the individual's participation was a value to the organization. At the top end of the scale, the Hammer team members knew that others talked about them and felt very proud that their work group story was a major part of the organizational saga—that others told their story to describe the organization. But the organizational saga was important to all in explaining their place in the organization, pointing out the fast tracks and dead ends within the Civil Defense.

The organizational saga was surprisingly accurate, not in its handling of facts but in defining the reward and expectancy structure of the Civil Defense. While it painted a picture of the organization in an overall favorable light, most participants were quite knowledgeable about the deficiencies and shortcomings of the organization.
The underlying truth of the saga is understandable. Each individual had experiences with the organization; and if that experience contradicted the saga, people were going to modify the saga. If the saga is not believed, it cannot serve as a model for action. If the saga does not convey a realistic image of what types of actions and behaviors are desired and rewarded, it cannot function as a substitute for formal rules and procedures. The Civil Defense saga was accurate, not in the sense that every fact was objectively true, but that the image it created for the participants was very closely related to the realities of organizational functioning.

The Importance of the Saga to the Individual

Examining the importance of the organizational saga to the individual both expands the concept as developed by Clark (1972) and Mitroff and Kilman (1976) and points the way to a deeper understanding of organizational functioning by raising the question of what do the participants know of the organization and how do they organize that knowledge.

In the expansion of the concept, Clark used the concept of saga as a way of understanding how one organization becomes distinctive among others of the same type—of how Reed, Swarthmore, and Antioch Colleges came to have distinct images among the population of universities. In the examination of the saga within the Civil Defense, the saga served a broader purpose for the individuals actively involved with the organization's functioning. First, the saga addressed more than just the distinctive aspects of the organization; it formed the
basis for achieving consensus across a wide number of issues throughout the organization. Second, it helped the individual acquire an image of what behaviors were desired or would be rewarded. Third, it provided a shorthand version of the organization's functioning. Fourth, it was in a form that was easily remembered.

**Individual Images of the Organization**

The organizational saga served to organize the participant's experience of the organization. One of the striking features of the saga in the Civil Defense was the extent that individuals told essentially the same story. This was striking because of the observable differences between the individuals and their relation to the organization.

For example, at a simple level I heard the following story used as an explanation of how Terry Wilson built the communication system at least ten times. "When Wilson arrived, the first thing he did was put the radio from the operations room in his state car. Then he complained that he had a radio, but no one to talk to." The anecdote contains some factual errors, but for a one sentence description of what happened, it is a good approximation. Apart from many people using similar phrases or the same anecdotes to describe a situation, the strongest evidence is that when asked to describe what happened in the Civil Defense, irrespective of their job in the organization they all centered their accounts on Wilson, the action-orientation, the communication system, and the Hazardous Materials Program.
The individual's job at the Civil Defense was not merely a job; it was an integral part of his life. In this respect, for some, the positions in the Civil Defense were tangible evidence of their successes and failures. Some felt their positions were indicators of their failure in life, while others perceived their positions in the opposite vein.

Each individual, also, had to balance the demands of working at the Civil Defense against other aspects of his life. If the Civil Defense demanded more time at work, a corresponding amount of time had to be taken from time normally devoted to family or social affairs. Each time the Civil Defense changed, each individual had to evaluate the change not only with respect to the change vis-a-vis his job, but what it would do to his life with respect to both his current situation and his expectations of the future. It was this balancing of demands both inside and outside of the organization on the part of the individuals which caused much of the demand for information, which collectively was termed the organizational saga.

The Enacted Organization

As the organization changed, the changes had differing impacts on various people. While the participants might share a common view of the Civil Defense through mechanisms such as the organizational saga, each had to interpret and adapt to changes in terms of the image he had of his life. Some saw increased activity as a welcome change, while others thought of it as an intrusion; and both responded
accordingly. Those who welcomed the increased activity may have done so for different reasons and responded accordingly.

Each individual had to interpret changes in the organization in terms of what it would mean to him and how it would change his life. Toner found the increased activity personally fulfilling and sought more. Majors found increased activity rewarding, but he would get tense and emotionally wrapped up. The action orientation was preferable to administrative tasks, but there were limits on how much activity he wanted, and he would quietly resist efforts to increase the load.

Any major change in the Civil Defense induced individual responses, and these individual responses formed limits on what could be done and the way tasks could be accomplished. It was rarely a question of anyone's outright refusal to comply, but more an issue of how much support individuals might offer. The outcome depended on who actively found it in their own interest, the extent of the support they gave, and the basis on which that support was offered. The organization became a web of expectations and interrelated demands. This web, in turn, altered the operational structure of the organization. Two examples will help illustrate how this occurred. When the hazardous-materials program began, some people—such as Dennis Major and Mike Toner—found it to their benefit or liking. They also found it easier and more rewarding to interact with others who also accepted the idea. On a self-selecting basis, the individuals who found it to their liking or benefit identified themselves and began interacting as a group. As the group coalesced, the reward structure changed subtly, with more benefits accruing to those involved with
the program and, in turn, this had the effect of attracting more individuals to the group, but on a different basis. The late switchers weren't necessarily slow per se; they merely hadn't found it to their advantage to be associated before. As the group enlarged, it became increasingly internally differentiated—partially with respect to the task, but also this differentiation was in response to different individual's basis of participation.

Throughout the organization, individual differences shaped and formed the organization: a secretary quit over being called in on a Sunday but couldn't be replaced because of a hiring freeze; a perceived insult led a state commissioner to investigate the Civil Defense; there were workers in bureaucratic jobs in other agencies who spent large amounts of their time working on matters relating to the Civil Defense because it relieved the boredom. Each of these people responded to the Civil Defense based on their perception of what it meant to them.

**Acquiring Job Images**

Most of an individual's time spent on the job was spent doing things. While this may sound trite, it was a very important factor in the composition of the organization because a person's usefulness to the organization was in terms of what tasks the individual could perform. If a report had to be written, it was given to a person who could gather information and write. When a radio would not work, it required someone who knew how to fix a radio. If the
legislature was voting on an issue, it required someone who could communicate effectively with the lawmakers.

If there was an overall rule as to who got assigned to what tasks, it was doing the job without a "fuss." This did not relate to an individual's complaining, but to the ability to get the job done effectively without negative information coming back. Superiors seemed to assign people—in part—on the basis of who could get the job done without creating disturbances. A person who acquired a reputation of being able to do a job without a "fuss" first got more of his requests granted and second, got assigned proportionately more tasks than others. The reputation of being a "good worker" was an important attribute for a worker.

**Jobs and Work as Schemata**

In Chapter I, I indicated that people have the capacity as a **bottom-up information processor**. What this means in practice is that man can create and test theories from the ground up. Bill Backs, a radio repairman, taught himself how to repair telephones by fixing whatever problems came up with the phones at the Civil Defense. He started from a base of little knowledge about telephones and acquired a theory of telephone systems and how the phone company implements the phone system. Small pieces of information were built into a theory. The theory grew through stages. At first it was almost entirely trial and error, of doing something and seeing if it worked, comparing the pieces of a broken phone against a working phone. At the second stage
the process resembled hypothesis testing and was more abstract than at first. It involved forming hypotheses about what types of problems could be causing a certain kind of difficulty.

At the initial stages of learning, the schema were distinct. At later stages, the schema were being integrated and the "theory of telephones" was developed by putting the pieces of information together in a form from which the distinct pieces of information could be recalled on demand.

Second, the formation of Back's theory of telephones was not entirely derived from his work on telephones. He brought a lot of prior experience into the situation with him—schema and images he acquired in other places—his work on radios, his work on cars, electrical work he had done around the house. Not only did his work on telephones stem from practices and logics he had developed elsewhere, but the incremental knowledge he acquired from his excursion into telephone repair became part of his general store of knowledge and had some impact on his behavior when he helped fix the air conditioner. In other words, his telephone knowledge became part of his schematic representation of a larger category which might be labelled "fixing things."

Third, how he went about the process of fixing phones depended on how he stored the information. The job demands were varied and required different types of information. Imagine a sequence of job demands. He is called on the phone and told that so and so has a phone problem. Bill has to reschedule the work he had planned for
the day. Then, he has to decide what equipment he has to take to the headquarters; and he might ask himself if he should combine that trip with other errands. On the job, aside from telephone repair skills, he may have to use tact in asking others to leave their work so that he can work in that area. The issue here is that viewed sequentially, the task of fixing a telephone may involve many different types of skills and somehow they must be integrated so that each may be accessed and translated into behavior at the proper time.

Fourth, the categories that he found were derived from practice. Whenever there is a change in the structure of the environment, it may render the categories that he uses to access information inappropriate.

Fifth, apart from the content of the learning, the success of failure affects future willingness to take on tasks. This can work in several ways. Apart from the knowledge itself, the success at figuring out a telephone system may have affected his willingness to try to figure out an air conditioning system. Further, it affects the demand of others. Terry Wilson frequently constructed groups on the basis that the members were "were good at fixing things." And his knowledge of who was "good at fixing things" was based on prior observations of these people fixing things.

Sixth, organizationally this was a spiraling process. Those who had some ability to fix things were assigned to tasks where they learned to fix different things which made them more valuable at the next iteration. Conversely, there was a tendency for those who didn't
know how to fix things not to be assigned to these types of tasks and their knowledge never increased—they didn't develop schema in these areas.

Motivational and knowledge considerations interacted. Individuals attempted to place themselves in positions where they would be rewarded, but the new positions frequently involved learning new skills which made them more useful to the organization and frequently influenced what tasks they would be assigned in the future.

Last, this growth process was not occurring as an organizational process, but rather in the heads of the participants. The more that an individual knew, the greater his value to the organization. When an individual left the organization, he took all of this knowledge with him, both in terms of social and technical images. The hidden cost of turnover to the Civil Defense was equal to the social and technical learning the new person would have to gain before he could function as effectively and smoothly as the person who had left. Relatedly for the individual, the cost of leaving was partially determined by the extent that the social and technical knowledge acquired in the Civil Defense could be applied or utilized outside the organization.

Top-Down Learning

In bottom-up learning, discrete pieces of information or knowledge are used to create larger wholes in a manner similar to induction. In top-down learning, the distinguishing characteristic is that the categories are generated first and the pieces of information are
developed to fill out the category. An example is Tom Eaton's learning during the Center City flood.

Prior to the flood he was aware of the broad categories of what had to be done. What he learned was the necessary steps to reach that end. In terms of schema, he was provided with the categories or labels which would eventually be used to access discrete pieces of information. This is an assimilation process in which the schema is not being structurally altered, but is being filled out.

The categories to which he had to become responsive were spelled out in advance by the programs offered by the Federal government with their attendant rules, regulations, and procedures.

This type of learning was more prevalent when the cause and effect relations were known or specified and the learner is expected to achieve a certain standard of behavior or performance.

Interactive Learning

The examples of bottom-up and top-down information processing have related to finite areas of action, and in both cases it was apparent when a job was done. In the chemical hazard arena, few things were clear cut and the knowledge required was more complex. Technically, in addition to being fairly knowledgeable about chemicals and their properties, a complex piece of learning in its own right, a seasoned responder had to be familiar with: specialized equipment for handling chemicals, railroad equipment and procedures, trucks and truck procedures, earthmoving equipment, fire department equipment, police
procedures, chemical and petroleum manufacturing processes, meteorology, media requirements, health department techniques as well as the basic techniques which would be used by other agencies, such as the Red Cross or the Coast Guard, who might be on-scene.

Beyond the official and technical knowledge, there was a more complex form of social knowledge such as the knowledge of how police conduct evacuations apart from the official procedures. This knowledge involved knowing what types of instructions, guidance, and support a police department might expect and the areas in which the police expected to be allowed to operate autonomously. This held for the other types of organizations as well.

The social knowledge of the more experienced responders such as Terry Wilson or Paul Scott extended to specific organizations throughout the state, such as response capabilities of the West Ridge Fire Department and how much the assistant chief could do on his own or how much the mayor might interfere.

While the knowledge that a responder might possess was complex and wide ranging, the issue was made more complex by the fact that chemical disasters do not occur in categories. Acquiring an image of what actually was occurring was a skill in itself in which parts of other images were being used to compose a picture of what was happening overall. "The governor wants to talk to you on the phone." "The police want to know if the housing development should be evacuated also." "The valve on the tank car is corroded." "The wind is shifting to the south." "Are you hungry?" "Mike thinks we ought to have more hose
just in case." The responder's behavior depended on his prior experience and how he organized that knowledge in light of the demands being made. Each situation posed new problems even in routine operations for each time the Civil Defense was operating with a different set of organizations with different capabilities. The biggest problems might not come from the chemicals themselves but from the synthetic organization (Thompson, 1967) which was being created on the scene. Each action changed the situation somewhat, so that the next action had to be premised on what had preceded.

In the construction of these responses, the responder used bottom-up and top-down processing interactively. Discrete pieces of knowledge would be used to respond to aspects of the developing situation, but how the situation was perceived by the responder depended upon the labels the responder attached which in turn determined which pieces of his knowledge would be accessed. The responder was forming his image of the situation both in terms of what he was seeing and hearing and the way in which his actions were affecting the situation.

The Civil Defense Responses

The emergent categories or labels weren't obvious in the early responses. What was obvious was the confusion. The after-action meetings took on new significance because it was here that the personnel got together and tried to figure out what had happened. New situations were retrospectively defined (Weick, 1969). The focus was on factors which had caused problems—the media had interfered, they had lacked the proper tools, a fire chief had refused to cooperate,
they couldn't find out what chemicals were involved.

The definitional problem was compounded by the fact that each incident posed a different configuration or problems which kept categories of problems from emerging with any clarity. Second, they had a problem of credibility. While the governor had declared that the Civil Defense was the lead state agency in dealing with hazardous-materials responses, few of these incidents occurred on state property, and the declaration didn't make the Civil Defense personnel experts automatically.

In terms of the image formation process, they began with neither categories nor information content. The overall objective was to "return things to normal," but beyond that aspect, there was very little guidance. Lacking both categories and information, the participants seemed to use an iterative process similar to the "find-and-reduce-difference" heuristic described by Simon and Newell (1971).

**Forces and Counterforces**

The after-action meetings, especially the early ones, were partially a sense-making process (Weick, 1977). Much of the evidence used to "make sense" of the situation was an examination of what the consequences of certain actions were. After series of actions, some themes were recurring more often than others. A dike which had held a material successfully would be discussed and others would start using that method. If firemen were resisting certain types of orders, this might be discussed and gradually this might become "the way to deal with firemen."


Many of the definitions came through failures, deficiencies, and shortcomings. Bits of knowledge were tried together in various combinations searching for answers which would fit the problem. It was a search for themes. Certain actions would create resistance.

At one point, there was an awareness that large city fire departments resented Civil Defense interference more than others. Gradually in this arena a theme began to emerge. Operating with large city fire departments would cause resistance and repercussions. Part of their explanation was that large fire departments tended to be better trained and equipped than many of the smaller volunteer fire departments and, as a result, the Civil Defense had less to offer. In a variety of ways, the large city fire departments let the Civil Defense know they were not welcome. In an iterative process between action and explanation, the various parties began to define their expected roles. The Civil Defense began to do less and less in the larger cities and concentrated more on the smaller cities. It was an interactive definitional process because initially it was the resistance that caused them to examine that issue in the first place. It took a while for the city size variable to stand out as a theme. In the second phase, the reasons for the resistance were examined and an interpretation offered. In a third phase the interpretation turned into a role definition—"the Civil Defense responds to chemical emergencies where the community does not have the resources or the expertise to handle events themselves."

In many respects this was a legitimate process of working problems
through. But there was an aspect which involved power. The Civil Defense employed strategies to get others to accede to their wishes. One of the most direct was that if the Civil Defense was the only agency which had the required equipment, they could get their way. Larger communities had their own equipment, so the Civil Defense strategy was ineffective in these locations. The later theme of "we help in communities which don't have the necessary equipment and training" was, in part, a rationalization. The explanation was a rationalization for specifying the communities where they could work.

In the general movement toward responding to chemical disasters in smaller communities, the Civil Defense was also responding to where they were welcome. When there was a chemical emergency, in the majority of cases, the Civil Defense presence was welcomed because the community responders were not experts. Over time the Civil Defense responded more often where their presence was welcomed. The overall point was that there was an interactive relationship between going where they were welcome and staying away from places where there was resistance and the reasons that the Civil Defense gave for their involvement.

**Learning and Organizational Differentiation**

Initially one of the biggest problems in the hazardous-materials response was that nobody really knew what they were doing. When someone performed well on a certain type of task, he was apt to be selected to do that task again in the next instance from which that
person got additional experience which more than likely he would call upon the next time.

Overall this made certain people very valuable to the organization and left out others. Wilson, because of his masters degree in chemistry, had to be involved in almost all of the responses. Toner generally ran the operations center. In addition, the response teams were made up of who was available at the time. This induced a tendency to select a) those who were near and b) those who could be pulled off their jobs at a moment's notice in addition to the self-selection process described earlier. Not surprisingly this meant that the response teams were those in the state headquarters and the regional office which was located at the state headquarters and those who were juniors and had jobs which were less critical.

The teams became further defined when the money to develop the hazardous-materials program began to flow in. The first to get personal protective equipment were those who knew the most. They also were the first ones selected for special classes.

The more often the same people were selected, the more that group began to function as a team—they were the ones who had gotten used to working with one another. They saw what the others on a response did and learned. They were the ones who went to the after-action meetings and learned more. On operations they stayed in motels with one another and had their meals together. When they discussed their experiences, they talked with one another. The
response teams which had initially been formed on the basis of interest, proximity, and availability were forming into a very distinct group.

The process was further reinforced by Wilson and Toner. They were the ones who were present on almost every operation. It was the response team members they were with on a daily basis, and this became the "group" back at headquarters. Communications and hazardous-materials got more and more of the attention, while the other areas of the Civil Defense such as the regional offices and the other sections within the Civil Defense headquarters got less attention. The knowledgeable became more knowledgeable while those in other sections didn't become less knowledgeable, but they didn't improve their knowledge proportionately; so that in terms of job performance, those on the hazardous-materials teams were contributing more to the organization.

None of this was done by design. When there was a job to be done, it was generally given to the person who could do it best and in so doing, a self-perpetuating process began.

The Individual and the Organization

At each juncture the individuals were responding to the organization as they perceived it. These perceptions were egocentric. The requirements or demands of the organization were different depending on whether one was on a hazardous-materials response team or in an administrative position. Second, each individual had to integrate the job demands with the other aspects of his life. For example, for
Dennis Major, the hazardous-materials program required that he subordinate his outside activities to the demands of always being on-call; while Alex Schoenbrum, in the planning office, had to contend not with the off-duty hours, but with the fact that he couldn't get any programs of any consequence off the ground. Because of that, first he couldn't make the job an important part of his life; and second, it kept him from gaining the experience which future promotions and future job performance would depend upon. Again in a cyclic fashion, those who got more of the benefits and opportunities were more willing to adjust their lives to the demands of the organization while those who weren't involved with the central processes found it more and more difficult to care about their jobs. The consequence was that more was being done by those involved with hazardous-materials, while the attitudes in the other sections of the organization became self-protective. They supported the hazardous-materials teams as best they could, but other aspects of their jobs slid. Those who were older and weren't looking to further their careers performed their jobs and developed stronger outside interests. The younger people who were still developing careers and who were on the periphery of the organization gauged their involvement according to their assessment of what their outside opportunities were. Those with college educations generally left when other state or federal jobs became available. Those without college educations were in a different position. Most had entered the Civil Defense from the military. The younger ones generally did not have job skills demanded in the private sector. A
partial response was to get more involved with the hazardous-materials teams; but after the teams had coalesced, there was less room for the rapid growth in knowledge. While the longer they were present the more they learned, they were on the negative side of the self-feeding process—because they hadn't done a particular job before, they were not assigned to the task the next time it occurred.

**Commitment and Wilson's Decline**

When Wilson and Toner fell out, the organization split along lines predictable in terms of different types of individual involvement with Civil Defense. Those who weren't personally committed to the Civil Defense watched the affair with detachment. They were going to keep their jobs, and those jobs were likely to remain the same, irrespective of the outcome.

For those concerned with operations, however, the split between Wilson and Toner went beyond a personal conflict. Jobs and careers would be influenced by the outcome. There was normally little room for promotion and the upheaval did cause some jockeying for position. This was an emotional issue. For those whose jobs involved emotional commitment, the response was emotional—loyalty which had been directed to the Civil Defense suddenly was attached to either Wilson or Toner personally. For these people, the organization was not different from Wilson and Toner. Put another way, the loyalty and the emotional commitment was not to the Civil Defense per se. Wilson and Toner themselves had become symbols for individuals' interpretations of meaning in the organization. When Wilson and Toner split,
the individuals with high involvement attached their loyalties and emotions to one of the two. The previous categories around which they understood the organization had been destroyed in the split, and the high level of involvement attached itself to the people itself.

Summary

This chapter has attempted to trace the interactive flows of resources and motives within the Civil Defense to show how small, discrete behaviors aggregated into macro behaviors in the relative absence of administrative attempts at organization and control. The next chapter will present a more formal presentation of the topics which have been developed.
Chapter IV
A Cognitive Model of Organizing

The individual experiences neither society nor organizations
directly. He encounters both only in his relations with others.
Through relations the individual actively conducts his life while
also trying to fit his wants, needs, aspirations, and expectations
to the perceived matrix of relations which exist in the larger
society (Burns, 1978).

The purpose of this chapter is to develop a cognitive model of
the individual's behavior within organizations. Behavior is con­
ceived of as an active process in which individuals try to fit their
actions to an external world which they neither fully understand nor
control. Over time, each individual develops a relatively consis­
tent set of images which represents his image of cause and effect
and his relationship to the larger world (Boulding, 1956; Bem and
Funder, 1978).

The model includes not only the individual's image of himself,
the self-image (Mead, 1934), and cause and effect in the world, but
also integrates these images at a number of levels. Robert Lane, a
political scientist, observes that a person who is disappointed in
his status in the world also has views on the world that judges him
that way (Lane, 1962). The self-image and the attendant world view
are shaped by the individual's history of reinforcement and the
individual's interpretation of that process. Because individuals have unique histories, the socialization process is never complete (Berger, 1967), but is relative, dependent upon the similarity and complimentarity (Bateson, 1972) of the images accessed in the inter-action process.

From the individual's point of view, an organization is a bounded field of action. The organization's culture (Pettigrew, 1979) represents a refinement of the norms, values, and attitudes of the larger society with respect to the organization's purposes and its history. The organization is a field within which the individual can construct behaviors to realize his needs, wants, aspirations, and expectations. Conversely, the individual will encounter expectations of his behavior on the part of others which is a reflection of the past behavior and the history of the organization (Stinchcombe, 1965; Louis, 1980). It is a constant process of fitting and adjustment.

Further, "individuals are the agents of organizational action..." (Argyris and Schon, 1978:19). The concept of agency highlights the fact that organizations do not act, people do, and they are enacting behaviors (Weick, 1977) within a force-field (Lewin, 1951; Deutsch, 1954). These behaviors reflect the individual's image of the current situation in light of his perceptions of himself, the culture, and the organization. To understand individual behavior in organizations it is therefore necessary to develop a model of how the individual holds his knowledge of the world and how those images are enacted into behavior within organization settings.
Schematic Representations

Images are schematic representations that the individual forms from previous knowledge to understand the current situation. Simon (1969) has stated that the apparent complexity of behavior is the result of man, a cognitively simple organism, responding to a complex environment. Care, however, should be taken in the interpretation of Simon's statement. Man is cognitively limited in the rate with which he can process information, but the images that he possesses may be complex, formed in such a way that the individual may be capable of making very subtle distinctions of a complex world.

In defining situations, the short-term memory selects cues from the environment to access information from long-term memory. The information accessed, however, may induce the individual to attend to other sets of cues in the environment which in turn may cause other schema to be accessed through the node-link structure. The individual does not have a static representation of the situation, but one which is constantly changing as information accessed from long-term memory makes the individual alert to different types of phenomena in the environment. Second, in interactive processes, each individual involved is going through a similar process, enacting behaviors formed by the image he has at the moment; and therefore, the situation itself is changing.

Several theorists (Bem, 1972; Weick, 1969) have suggested, therefore, that meaning is retrospectively defined. The individual can only inspect and ascribe meaning to the process after the events
have passed, and the situation is unchanging. Because the individual cannot fully understand or comprehend the meaning of events as they are developing, he may focus on the way that his prior image of the situation is being realized. The individual may only be testing his image against what occurs and only reacting to the differences that he considers important.

The Relation Of The Image To Action

The notion of expectancy is central to most cognitive theories of motivation (Atkinson, 1958). Stogdill (1959) has defined an expectancy as a "readiness for reinforcement." The advantage of Stogdill's definition is that it links the cognitive concept of expectancies to behavior and the consequences of that behavior. The behaviors the individual constructs are a product of the means-end analysis (Simon, 1979) which he believes necessary to achieve the desired reinforcement. Here, in what will be termed the image-behavior sequence, the concept of image will be added to the sequence of expectancy, behavior, and consequence. It is the image which determines what expectancies the individual will form and the structure of those expectancies.

In the image-behavior sequence, it is the individual's image of the situation which is his internal representation of what cues in the environment are relevant and what parts of his knowledge are appropriate to the ongoing situation. From this image the individual forms expectancies of what types of behavior will lead to what
types of consequences. The individual constructs his behaviors from these expectancies. A single behavior may have multiple components such as in the example above or the individual might envision a chain of behaviors which have different aspects but which move toward a single end consequence.

The consequence is compared to the image and the comparison may be used by the individual in a number of ways. Broadly, the individual can use the differences between the actual consequences and the image to access other information from memory, alter his definition of the situation, or both. The individual can receive information on how well the expectancies that he forms from his image are being realized in practice. The greater the extent to which behaviors that are constructed from the expectancies are leading to their intended consequence, the more confidence the individual will have in the adequacy of his image. The individual may not be concerned so much with the objective truth of the image but rather with whether the behaviors formed from the image are achieving the intended consequence. In this manner, enacted behavior (Weick, 1977) is bound by reality.

Image Change

Individuals develop images of organizations, and these images are hierarchically formed (Simon, 1979a). In the image-behavior sequence, the image is tested against the consequences of the enacted behavior. If the behavior fails to lead to the expected consequence, the individual may reformulate part of his image. Through this
mechanism, the individual can adjust his subjective image of the organization or of specific aspects of the organization. Through this mechanism, subjective images are tested against "reality." It was sufficient, however, that the behaviors enacted from these images led to the intended results. The individual does not need to be consciously aware of all the forces that he was responding to.

During the interview process, it was not uncommon for individuals to be able to give relatively complete accounts of what they had done but not be able to answer questions as to why they had done that or to articulate precisely what kinds of forces they were responding to. While there were strong individual differences among people in their capacity to give articulate explanations of their own behavior consistent with Simon's (1969) contention that man is a serial information processor, almost all of the participants seemed both more comfortable and were more articulate when they explained their behavior in a narrative or sequential fashion as opposed to categories or topics. Again, while there were individual differences, the participants did not seem to change their behaviors based on the fact that the situation had changed but because the behaviors they enacted from their image of the situation failed to lead to the intended result.

When there are differences between the imagined and the enacted script to which the individual is attending, the change depends on the individual's level of understanding. In the Civil Defense, persons with newly formed images could not be sure if their images
were incorrect or if the situation was changing; i.e., if there were additional elements in the situation which had not been present before. For example, Alex Schoenbrum, who had recently been hired as a planner, had a difficult time learning about the Civil Defense because he joined during a time of rapid organizational change. As he was trying to develop an image of the organization, the organization itself was changing rapidly. When his enacted script would fail to achieve its intended end, he could not form judgments that he could have confidence in.

Someone who had a more elaborately formed image of the organization did not face the same difficulty. Mike Toner, for example, knew that his images had achieved their intended aims in the past with regularity. In instances, therefore, when the script did not work out as planned, he could assume that the situation itself was changing. How an individual changes his image depends on how much confidence he has in the image which in turn depends on his level of understanding of the phenomena in question.

How a person changes an image also depends on its centrality. Images are types of schemata and are hierarchically formed. A schema which is low in the hierarchy can be altered relatively easily because it does not serve as the basis of integration for many other schemata. If a schema relatively high in the hierarchy is found wanting, the individual may resist the change because all of the schema below that one are integrated, and hence accessed, via the one which is being challenged. Because of the associational or webbed structure of
memory, the individual does not lose the capacity to access all the schema lower on the hierarchy, but he does lose the capacity to access that information via that route. This represents a high informational and behavioral cost to the individual for an image which is central.

Bases of Agreement

As the section of the organizational saga described, the individual in the Civil Defense spent a considerable amount of time working toward a common understanding. Nonetheless two individuals do not possess exactly the same image of a phenomena for while the images may become highly similar and perhaps work toward greater similarity, each individual's image retains a degree of egocentricity due to the requirement that he integrate it with his previous knowledge.

For joint action to be possible, it is only necessary that the images be similar or complimentary at points where the behaviors of each person are interdependent. It is, therefore, not necessary for each person to agree with the image of the other. One individual can adjust his behavior to the expected behavior of the other based on his image of what the other's image is. For example, several people did not agree with Wilson's view of what the Civil Defense ought to be, but some image of Wilson's view was necessary for them to construct their image of the plausibility structure.
Control

Control can be conceived of as the reduction of a variety of behavior toward a specified end. At any given time, an individual is capable of emitting several behaviors, and control can be conceived of as purposeful attempt by others to increase the probability that some behaviors will be enacted and to reduce the probability that undesired behaviors will be enacted. This definition is in conformance with Floyd Allport's "J Curve of Conformity" (Allport, 1933; Katz and Kahn, 1978) in which the normal distribution of behavior takes on an "J" shape due to external influences. Two broad forms of control will be examined here: attempts to control consequences and attempts to control images.

Attempts To Control Consequences

Attempts to control consequences induce the individual to adjust his behavior to receive rewards and avoid punishments within the setting. This idea has been thoroughly discussed elsewhere (Skinner, 1969; Bandura, 1969). Individuals have been shown to respond in a predictable fashion to positive reinforcement (Skinner, 1969) and to negative reinforcement (Allyon and Azrin, 1966; Bandura, 1969).

Within the force field, or setting, the individual forms an image of which behaviors lead to what consequences. The presumption is that the individual will act to receive the rewards, avoid the punishments, and adjust his behavior accordingly. This leaves two primary sources of individual differences--the extent to which all the
relevant individuals share the same image of what behaviors lead to the consequences and second, the extent to which they share the same interpretation of the consequences.

Within the Civil Defense, certain individuals saw the move to an action orientation as desirable. Generally they were younger, more able to handle the physical demands, and looking for a way to avoid the seniority system as the only promotion path. Many of the older Civil Defense personnel withdrew from active participation. The overall result was that the change in consequences did not affect the organization evenly. Each individual responded to the control system based on his interpretation of the desirability of the rewards which were offered. The creation of the action orientation was not the result of everyone's becoming action oriented to receive the rewards, but of those finding action rewarding enacting those behaviors and those who did not find the action orientation rewarding withdrawing from activities central to the Civil Defense. While it would be an overstatement to say that individuals did not adjust their behaviors to the changed pattern of rewards, it was not individual change which was being accomplished as much as it was a shift of which groups in the organization were active and which were peripheral. Those being rewarded became more active; those who found it punishing became less active.

Attempts To Control Images

The second major way in which behavior can be controlled is
through the image the individual forms of the situation. In control-through-consequences, the presumption is that in a certain circumstance the individual can construct any of several behaviors. Control is exercised by creating situations in which certain behaviors will be reinforced. Control-through-images involves controlling what the individual learns.

Wilson found it easier to control the younger members of the Civil Defense in this way because they did not have a wide variety of past experiences to fall back on. They formed images of the action-orientation based on what they had seen. New experiences had to be integrated with what they had experienced in the past. Wilson could control many of the factors by influencing what a person was exposed to. He could control what assignments a person would be given and in this way could control what they learned. By taking a person along on several chemical disaster responses before sending the person to formal courses on chemical hazards, he controlled the individual's comparison basis. In this case, the information in the course would be compared to and integrated with what he had already experienced. The course would be compared to practice.

Actually, the forms of control were interactive. Certain types of learning were reinforced. If Wilson could control what the person learned in the first place and then reinforce him for it, the individual would develop confidence in his image and would continue to behave in that fashion without supervision as long as the behavior was reinforced.
Wilson, as controller, was also being reinforced by the behavior of others and this influenced his use of reinforcement. Wilson wanted the action orientation, and it was the younger members who responded positively to his influence attempts. Wilson was positively reinforced by their behavior, and he devoted more of his attention to this group, training and developing them while generally ignoring those whom he could not influence. In a spiraling process, the group he was training and developing was becoming more helpful to him; and hence, he devoted more attention to them. The more attention this group received from Wilson, the more their knowledge was influenced by him.

The Potential For Action

In the interactive process between the control of image and the control of consequence, the organization was becoming increasingly internally differentiated. Abstractly, what the organization could do at any given point in time, its potential for action, depended on who knew what and on what basis. The organization's potential for action depended on who had formed what type of image.

Individuals who performed successfully were selected for response teams more often and they got used to working with one another. Not only was the content of the knowledge being differentiated within the Civil Defense, but patterns of interaction were being formed—of who interacted with whom on what basis. But as the patterns of interaction were being formed, the reward structure was changing, so other individuals were being attracted to the in-group as they found it
progressively harder to obtain organizational rewards under the older patterns of behavior. They, too, learned about the action orientation, but they were under the tutelage of the early adopters.

They were taught only patterns of behavior which the early adopters had found to work in practice. As a consequence, the late adopters did not have the range of experience which the old adopters had formed. Nor were the late adopters as enthusiastic about the program as were the earlier ones, so that with the inclusion of the new people, the basis of commitment changed.

The new adopters were taught what worked and the interaction patterns which had been developed. Their images were narrower than those formed by the early adopters. They did not encounter the range of situations that the earlier responders encountered. They learned the techniques that worked, but that was all they learned. They found it more difficult to adjust to new situations because they had not seen the responses done differently. The effect was that as more people became chemical hazard responders, more teams could be formed of different groups of people, but the response capability was becoming more predictable because the newer personnel only knew one way of performing their duties. This narrowed the range of behaviors of the seasoned responders could enact because the newer responders could not adjust their behavior to changes the way that the older teams could. The second group of responders only knew "the right way" to do things, and within the organization it became progressively more important that things be
done that way.

It seemed to Wilson and many of the early responders that the second group lacked the vision, daring, and inventiveness of the first group. In many respects the judgment may have been correct, but it was partially of the early adopters' doing. The late adopters were only taught what worked and they were discouraged from trying out new things. Second, the early adopters already occupied the central positions in the new structure.

If Wilson was to change this situation, it would require another "revolution" commensurate with the degree of the one when he first arrived. Wilson did try to open the organization to movement again in the St. Marks operation, but this time the situation was not in his favor. The early adopters to the action orientation resisted his efforts to guide the Civil Defense into the civil disturbance arena. They would benefit little from reorganizing. It would require that they develop a new set of skills with no real gain for them in their place within the organization. Their image of what the Civil Defense ought to be was firmly centered on hazardous materials response, and they perceived Wilson's attempts to lead them into new areas as illegitimate. Lacking the support of those who had earlier been the base of his support, Wilson couldn't cause the "second revolution." Those who had earlier been instrumental in causing the first major change in the Civil Defense, now supported the status quo. Coupled with the restrictions imposed by the late adopters with their narrower images, the Civil Defense was becoming better and better at less and
The individuals within the Civil Defense were becoming resistant to change from any quarter.

**Leadership and Motive:**

Burns (1978) suggested that leadership and acts of power can be conceived in terms of the interactive relationship between resource and motive. Acts of leadership and power are not only determined by what resources and motives are present but how the leader or power wielder manipulates them. When Wilson first arrived, he created a setting in which those who were dissatisfied with the organization could act. As Director, he had the resources to reinforce those who acted in accordance with his wishes. But equally important, there was a sufficient number of people within the organization who already were dissatisfied with the older orientation. They found it in their best interests to respond positively. This group was sufficiently large to constitute a critical mass (Schelling, 1978). There was a sufficient number of people within the organization to cause a change in the pattern of reinforcements within the Civil Defense as a whole. When Wilson tried to change the organization the second time, there wasn't a sufficient number of people who found such a change in their best interests to constitute a critical mass. In this instance Wilson was a leader without a following.
CHAPTER V
Conclusions

This dissertation has attempted to show how a single organization operated. In chapters two through four, an image was created depicting the organization not as a static entity, but as a bounded field serving as an arena for enacting behaviors. What that arena was at any time was a function of what had gone on before, what was currently happening, and what people wanted to do in the future.

The goal was to see what the participants knew of what was happening, how they organized that knowledge, and how that knowledge structured behavior. In the most general terms, organized action can be conceived of as an interactive relationship between, to use Weick's phrase (1969:1), "...interlocked behaviors that are embedded in conditionally related processes." The conditionally related processes, from the individual's standpoint, can be seen in terms of an interrelationship between the content and organization of the individual's images and reinforcements which are available in the environment. The behaviors of the individuals are interlocked because they are enacted within a socially constructed environment.

Implications for Theory

Viewing the Civil Defense from the participant's perspective revealed several strengths and weaknesses of organizational theory in
general. Two points deserve to be highlighted: first, the limited focus of most theories; and second, the similarities among these theories.

The individuals in the Civil Defense did not behave in terms of the topic areas such as motivation, satisfaction, structure, or group processes. In practice, the individual understood each one only in relation to the others. The individual only understood group processes in relation to his interests and experiences and vice versa. Behaviors were constructed not with the intention of making a decision or inducing satisfaction but within a field of on-going action. The individual tried to fit his behaviors to the demands imposed by events and people in the hope of influencing the outcome; nor were the acts generally focused on single outcomes, but on multiple outcomes over time. These individuals were very interested in and actively tried to understand cause and effect relationships which they believed were related to outcomes they wanted to either achieve or avoid.

In this respect any particular theory of job satisfaction, motivation, or technology may be deficient if it does not conceptualize the variables in the same way that the participants do. The participants actively manipulate variables to create settings and conceive of the results based on the difference between their image and the perceived outcome. In a socially created and defined environment, the subjective and objective (Turner, 1978) are inextricably intertwined.
Decision Theory

Connolly (1977) has suggested a closer tie between information processing and decision making. He focuses on information processing as an inter-person communication process and information processing, as used here, is not addressed other than to say that the individual is an active decision-making mode.

There is a tendency in works on decisional processes to focus on the aspects of the process which are problematic, overlooking or minimizing the aspects which have been resolved or worked through. This causes undue emphasis to be placed on the maladaptive effects of prior learning, ignoring the potentially positive affects. Challenging outworn decisions (Janis and Mann, 1977) may be necessary and functional but it may lead to many unintended consequences and may be more difficult than originally planned if it is done without investigation of what other functions are being upset. Individual images of the interaction process may be destroyed without an effective provision for replacement.

The general lack of interest in how the participants organize their own knowledge in decision theory is perplexing. The very existence of many plausible orientations to decision making suggests that the individual must be involved in a complex process, yet most theories seem to suggest answers before asking what the problem is. There is an a priori judgment that decisions ought to be rational without investigating to see if the emotional or irrational aspects serve other individual or group functions. Livingstone (1971) has
suggested that an understanding of the emotional reactions to organizational phenomena has been slighted in the interest of intellectually defensible analysis, a position echoed here. At many junctures, procedures within the Civil Defense, which may have seemed irrational to outsiders, served important internal functions. A pressing need in future decisional research is to investigate the processes within the force-field encountered by the participants.

Motivational Theory

Similar to the line of criticism of decision theory, motivational theories suffer from research conducted in too narrow a context. This is not to argue that valuable information is not gained from restricted studies, but that the theories must ultimately be responsive to the same set of contingencies that the participant is. The image-behavior sequence outlined in Chapter IV attempted to point to the necessity of expanding cognitive models of motivation (e.g., Porter and Lawler, 1968) to deal with the consequences of behavior on the one end and the form that the individual holds his knowledge in at the other.

As most cognitive models of motivation are now stated, cognitively stated expectancies lead to cognitively stated consequences (e.g., Staw, 1977; Porter and Lawler, 1968). While this leads to methodological problems (Wahba and House, 1974), the larger issue is that individuals construct behaviors from these cognitions and these behaviors have consequences in the world. Changes in expectancies are made based on past consequences. Second, the effect
that consequences may have on future expectancies depends on how the individual forced the expectancy in the first place. This refers to the form of the image.

Another issue currently attracting interest in psychology is the extent to which the individual is aware of what factors motivate his behavior (Brody, 1980). An observation may be made from the Civil Defense. It may not be an all or nothing issue. Certain stimuli in the environment may cause the individual to become aware of changes in the environment. The critical issue is what information is accessed from memory depends on the form of the image. It is doubtful that many people could draw diagramatic representations of the structure of their images. In this sense it is doubtful that individuals are consciously aware of what motivates them. On the other hand, individuals are aware of their own behavior and may have some knowledge of their own motivation based on what they have seen themselves do in the past (see Bem, 1972; Weick, 1977).

My research notes contain many instances of individuals making attributions about their own behavior. For example, as one staffer commented on his attachment to the organization, "...if you get my adrenaline going, it's hard to shut it off."

In addition, there are indications in my notes that there are wide disparities in the extent to which individuals were curious about their own behavior. Many of the staff workers could discuss their behavior in great detail. The action oriented would often tell of an event very factually with little interpretation. At
first, I attributed this to their reticence. But after getting to know a few of the action-oriented better, I strongly suspected that this reticence related not only to their mode of explanation, but to their thoughts about issues in factual terms with little interpretation. Broadly, these differences can be interpreted in terms of the Junigan psychological functions: sensation, intuition, thinking, and feeling in problem-solving styles (Hellriegel and Slocum, 1979).

It may be that some people are more aware or conscious of their own motivation than others. While it is doubtful that individuals are totally aware or totally unaware of the causes of their own behavior, whatever awareness does exist changes the individual's image. This would influence subsequent behavior and thus have an impact upon the formal or "scientific" explanation of that behavior.

**Microbehaviors and Macroprocesses**

Schelling (1978), in a provocative set of essays, asked how individual processes aggregate into macro level social processes. Perhaps the most radical suggestion of this dissertation is that the organization is not the appropriate focus of organizational theories--the individual is. The problems in defining organizations in the research literature (Hall, 1977) are not definitional problems per se, but stem from the fact that what an organization is depends on what people think it is. An organization can be conceived of as a system of purposeful action (Silverman, 1971; Duncan and Weiss, 1979), but that purposeful action changes over time depending upon the interests and images of the participants and the particular
set or participants at any time. Both the system and the purpose change.

Few organizations come into existence prior to someone imagining them in that form, either through an evolutionary process (Mintzberg, 1979) or by design (Kimberly, 1979). Weick (1977) has offered several examples of how erroneous beliefs concerning an organization's state can become self-fulfilling prophecies because the individuals acted on the belief as if it were true.

Returning to Weick's (1969) phrase of "interlocked behaviors that are embedded in conditionally related processes," the focus shifts from "the organization" per se to organizing—acts which have the effect of reducing the variety of behavior. How the variety of behavior is reduced depends on the way that people process information; in other words, the structure, content, organization, and parameters of the image.

Implications For Practice

Throughout this work the importance of the content and the organization of the individual's images has been stressed as a determinant of organizational functioning. In this section three topics will be discussed in terms of practice, not because they are necessarily the most important, but because they illustrate best how the concept of image may be utilized to influence on-going behavior. These concepts are turnover, cycle of reinforcement, and training.

Turnover

Organizations spend a relatively large amount of time and effort
socializing their members and the socialization process extends beyond the formal training (Van Maanen and Schein, 1979). Each time a fully trained organization's member leaves, the cost is not only the training cost of his or her replacement but the direct and indirect cost of getting the replacement to the level of effectiveness and efficiency of the one who left. The person who left not only departed with images of technical processes but images of other people and an awareness of the plausibility structure. If the worker who left was a good worker in the sense that he could get a great deal accomplished with relatively little effort, it is that void which must be filled.

The immediately apparent costs are those involved in training and allowing the new worker the time to develop the relevant syntaxic understanding. The hidden costs are those which the organization bears until that individual has reached syntaxic understandings in terms of decreased effectiveness and efficiency and second, the decreased effectiveness and efficiency of those interacting with the new worker whose own work level suffers as they have to take time to forge working and social relationships with the new workers.

Turnover is not necessarily a negative process. First, there is nothing which automatically makes the pattern of relationships with the older worker better, in terms of effectiveness and efficiency, than the newer patterns. The task of bringing a new worker along can offer the parties an opportunity to eliminate some inefficient or maladaptive patterns. Second, bringing a new worker along may cause the other workers to take a look at their own work
images. Third, the new worker may arrive with relevant images developed elsewhere and his presence may increase the organization's potential for action.

A chronically high turnover rate has serious implications for the firm's long-range capabilities in two basic ways. First, the organization must invest a larger proportion of its funds to bear the direct and indirect costs of having a relatively high proportion of its workers operating with less than a syntactic level of understanding. The second way in which a chronically high turnover has serious implications is the reduction in the organization's potential for action.

Over time, the images necessary to function in the organization will become simpler in order to make them easier for the newcomers to learn. The organization may be aware that this is occurring. The Japanese frequently wonder how American firms function at all with their high turnover rates (Vogel, 1978). Part of the answer appears to be in the standardization of behavioral images. The concept of the management as a profession in a set of skills can be applied in a variety of settings (Chandler, 1977) which may relate not only to job skills, but to patterns of interpersonal relations as well. This may also account for the high importance that executives give to credibility (Kanter, 1977; Gabarro, 1978). In an arena in which people change frequently, the participants may not have the time to develop syntactic images of the others and in that absence, faith or trust in the other may be the only alternative. Second, high turnover
reduces the potential for action to functioning along the lines of the stereotypic action.

**Training**

Training, as used here, refers to informal and on-the-job learning as well as formal programs. The individual is constantly learning. Each new experience expands the worker's image of events around him, alerting him to new developments and changes in the environment. Training will refer, in this instance, not so much to the filling out of the image but to the formation of the image.

This is in line with Piaget's distinction between accommodation and assimilation in the formation of a schema (Wadsworth, 1979). Accommodation refers to changes in the structure of the schema. This would alter what information is accessed upon the presentation of a stimulus. Assimilation refers to adding elements to an already formed schema. By starting hazardous materials responder's training with on-the-job experience, Wilson was forcing the trainees into top-down information processing which influenced the way the individual thought about hazardous-materials response. Responders formed their images of chemical response based on the categories they had seen, an accommodation process. By influencing how the trainees thought about the issues in the first place, the behavior could be controlled without supervision.

Much work has been done on internal versus external locus of control (Rotter, 1962) and intrinsic versus extrinsic motivation (Broedling, 1977). There is agreement that however conceived, both
are socially learned and that the worker who has an internal locus of control or is intrinsically motivated requires less supervision in attaining a certain standard of performance. Again, in many respects, the Japanese appear to have taken the lead in this regard in their managerial or executive training programs. Thomas Rohlen (1978) describes the training program for managers in a large regional bank in Japan as typical of many Japanese programs. In this program, the trainers concerned themselves with the attitudes the trainees would form as much as the content of the material relevant to banking. The trainees learned self-discipline from Zen priests and interpersonal discipline from training conducted by the military. Sessions were held on the philosophy of the company and their place in it. Overall, the training focused on top-down learning. The trainees were being taught the categories before they were taught the content.

In this manner, attempts were being made to influence how the trainees would internalize (see Berger and Luckmann, 1966) attitudes by controlling the content of incoming information. Having taught the trainee to perceive information in a certain manner, the next step in the organization maintaining process would be to see that behaviors which were constructed in this manner were reinforced in practice.

The Cycle of Reinforcement

A cycle of image formation to reinforcement to further image formation has been described in Chapter IV. This ties the content of
an individual's image to his capacity for receiving reinforcement in a given force field. Briefly summarizing, persons who were rewarded for certain activities tended to remain in that arena where they learned more, increasing the chances that they could be reinforced in the next instance. Persons who were initially punished tended to withdraw from the arena. If the context is such that the person who initially left the field is forced to return, the person who stayed is relatively advantaged in his capacity to capitalize on the rewards which are available because of the intervening learning. This is similar to Graen's (Dansereau, Green, and Hagen, 1975: Chung and Megginson, 1981) description of in-groups versus out-groups except that this view focuses on the process rather than the attributes of the situation.

If one focuses on controlling the structure of the image in the training process, then considerable effort must be made to ensure that the structure of the image is reinforced in practice, especially in the early testing phases. Images are readily altered when the individual only has a prototaxic or parataxic level of understanding primarily because not much of his store of information is integrated on the basis of the structure of the image. The behavioral cost of changing the structure of the image is low. Individuals actively test their images and all of the training can easily be ignored if it is not rewarded in practice.

Attitudes can be conceived of as the categories the individual
uses to access information from memory and thus represent his definition of what is relevant in the situation. For managers, these categories are formed in an arena extending far beyond the organization's boundaries to the formal schooling and the attitudes towards organizations and managers existing in the society and culture in general. This poses a dual requirement. First, functional images formed in various schools of administration must be reinforced within the organization, if the organization is to capitalize on the positive aspects of the previous training. In a like manner, the trainers in the various universities and colleges have a responsibility for preparing students for a world which they will have to deal with. Livingston (1971) and Marshall (1964) have commented on the low level of correlation between business school training and later success. This highlights the need for seeing the image formation process as a system. Trainers and practitioners alike must ask, 'what images are being formed and are we reinforcing the desirable aspects?'

Content Considerations:

Ethnomethodologists (Garfinkel, 1967; Van Maanen, 1979) and Symbolic Interactionists (Blumer, 1969; Hall, 1972) have been at the forefront of learning how man constructs the images of the world he subsequently enacts in behavior. Methodological and epistemological issues aside for a moment, the issue of what individuals know of the
world and how they organize that knowledge has been generally neglected in the mainstream of organizational research. A pattern which emerges in the evolution of managerial and organizational theory (Mee, 1959; Wren, 1972) is a trend towards theories which admit to greater variety. The earlier "one best way" approaches of classical management have given way to contingency and systems approaches (Wren, 1972).

How much variety theories must potentially account for is bounded by the amount of variety that human brains, in the aggregate, may process (Ashby, 1964; Von Bertalanffy, 1962). This realization both expands and constrains the possibilities. On the one hand, the range of theoretical possibilities is only limited by the constraints on humans as information processors and their ability to control information by mechanical means (Wiener, 1950; Beer, 1977). On the other hand, at any given time the forms of organization which will work in a given environment depends on the plausibility structure of the society (Berger, 1967) and the forms of organization, both real and imagined, which exist as models (Wenke, 1980; Stinchcombe, 1965; Wiebe, 1967). Individuals cannot enact any type of organization they can imagine. On the other hand, types of organization which have never existed before can be enacted if the right people in the right places (relating to the control of resource and motive) can cause others to share the same image (see Kimberly, 1979). Again, what behaviors the individual can and will enact depends on the content and organization of his images.
The Need for Integration

The form of the image as a constraint on organizing points to the need for integration among theories. The individual possessing that image has a history and has developed within a culture. Similarly the organization has a history which affects its present operation. Theories must both reflect the considerations that the individual takes into account as well as the factors which affect the individual's behavior that he is unaware of. This task, while difficult, may not be as difficult as it seems for much of the seeming current disparity among theories stems from artificial boundaries. Talcott Parsons (1968) pointed out that much of the seeming differences between theories stems precisely from the focus on those differences. If one looks for similarities, most theories, even competing ones, agree with one another on most points. As I said before, I could relate my observations back to almost any theory I wished. Theoretical differences do not stem, in most instances, from one theory's being correct and the other wrong, but from the fact that each theory takes too few variables into account. Much time is lost arguing that one inadequate variable set is better than another.

Discipline related boundaries have induced another set of unnecessary barriers to integration. For example, attribution theories in social psychology, (Kelly and Michela, 1980; Wyer and Carlston, 1979), social learning theory (Mischel, 1973; Bandura, 1977), and ecological psychology (Barker, 1965; Wicher, 1979) within psychology are similar in many respects. Yet judging from who they cite, each
is pursuing its own path of development. At the same time, the findings of each have implications for the observations of the Civil Defense beyond those already made. If the three types of theories just mentioned could be integrated into a unified framework, the explanations of the behavior in the Civil Defense would be improved.

The boundaries are stronger between disciplines. It frequently seems as if each discipline is attempting to explain all of human behavior without recourse to the findings in other fields. The psychological theories just cited are similar to the interactionist and ethnomethodological perspectives discussed earlier in their form, assumptions, and findings. There is much unnecessary duplication. But each group rarely cites the other and when they do, it is frequently to challenge the validity of the other's methodology. This points to the third way in which artificial boundaries inhibit integration.

Methodological differences cause adherents of one form to discredit or discount the findings of the others (e.g., see Blumer, 1969; Bandura, 1978). Yet as Webb, Campbell, Schwartz, and Sechrest (1966) point out, one of the strongest types of findings in the behavioral sciences is when the same conclusion is reached by a variety of means. Again, the material contained in this dissertation could be validly interpreted from a variety of perspectives. But that is the point. I have tried to define the theoretical field in such a way that the similarities among theories could be perceived. Perhaps the majority of differences between theories stem from the way phenomena
are blocked, the level of analysis, or the limitations on the way behavior can be observed imposed by methodological constraints; but the human behavior waiting to be explained remains essentially the same.

Research Procedures:

The chief difference between research procedures and methodologies is the way they handle variety. Loose methodologies, such as the one employed here, may capture more variety than "tight" methodologies. The trade-off is straightforward. As the capacity for capturing the variety exhibited in actual behavior increases, so does the potential for misinterpretation. This suggests two interrelated strategies for ascertaining the validity of the content of the model presented here. To test the validity of the whole model, more studies similar to the design employed here should be done by individuals who have different backgrounds and orientations than mine. The view of behavior and organizing presented here leaves lots of room for legitimate differences of opinion, but this argues for more studies of this type to fill out the logical possibilities of interpretation, not fewer.

The second part of the overall research strategy consists of tests of aspects of the model. While the specific parts of the model presented in Chapters III and IV are not stated in hypothesis form, I did try to be sufficiently clear that most of the ideas could be tested under controlled conditions with little alteration.
While the degree of experimental control necessary for future research on some of the ideas presented here varies with the type of question being asked, I am firmly convinced as a product of the study of the Civil Defense of the need for more longitudinal studies. Simon (1974:484) stated, "The methods of experimental psychology are now shifting from the narrow view of experiment bound up with hypothesis testing to a view of experiment that puts its principal emphasis upon estimating parameters and the shape of functions." This statement could apply to organizational research as well. Organizations are not static entities, but can be seen as processes which mirror the capacities and limitations of the men who create, maintain, and change them.

Chomsky (1965) has distinguished between the surface and deep structure of language. Fifteen years after the Chomskyan revolution in linguistics, researchers in linguistics are developing a high degree of awareness of the interactivity between the surface and deep structures of language (Danks and Glucksberger, 1980). In some ways this dissertation has been an attempt to show some of the interrelationships between the surface structure manifested in organized behavior and the deep structure of human information processing. The task remains, to repeat Simon's phrase, "to estimate the parameters and the shape of functions" that give form to organized behavior.

After the study of the Civil Defense, I am in agreement with Simon (1969) that many of the answers to questions of organization are bound up in the way that the brain processes information. But,
again as a product of this study, I suspect that the form of the
answers may be more complex than Simon indicates because of the
highly interactive relationship between the deep structure of human
thought and the surface structure of enacted behavior.
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