To the Graduate Council:

I am submitting herewith a dissertation written by Patrick J. Mahoney entitled "Some Observations on the Imagery of a Group of Hallucinating Psychiatric Patients." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Leonard Handler, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

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copy 2

SOME OBSERVATIONS ON THE IMAGERY OF A GROUP OF HALLUCINATING PSYCHIATRIC PATIENTS

A Dissertation

Presented for the

Degree

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Patrick J. Mahoney

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ABSTRACT

This study was an exploratory study into hallucinations. Prior theories of hallucination were reviewed and criticized as too exclusively deductive in approach and as relying too heavily on analogue experimental procedures. The intent of the present study was to extend a particular method of approach to the phenomena, namely to describe the imaging style of hallucinators. It sought to replicate two previous findings--(1) that hallucinators have vivid imaging ability and (2) that hallucinators tend to prefer not to use the mode in which they hallucinate when asked to imagine something. More importantly it sought to generate further hypotheses regarding a characteristic ability and use of imagery which marks hallucinators.

Nine hallucinating psychiatric patients were interviewed and tested extensively concerning their hallucinatory experiences, their imaging ability, and their use of imagery. The imaging tests and tasks included the Betts Vividness of Imagery Scale, the Griffitts Imagery Modality Test, an adapted form of the Gordon Imagery Control Test, and the Rorschach Inkblot Test as well as an extensive open-ended interview on imaging ability and use constructed along the lines of Galton's original work.

The results of the study, presented in case history form, supported the first replication hypothesis, that hallucinators have vivid imaging ability but failed to support the second. Hallucinators in the present study showed no tendency not to prefer to use the

hallucinatory mode. Reasons for this discrepancy with previous studies were discussed.

The study served to generate a number of observations which served as a source for further hypotheses:

1. The type of hallucinatory experiences was seen to differ between hysterical and psychotic groups.
2. A bias in the present sample was noted in which willingness to cooperate with the study seemed related to the type (threatening vs protective) and location (distant vs near) of the hallucination.
3. All subjects shared an inability to control their images, particularly in the hallucinatory mode. They generally experienced their images passively and as autonomously generated.
4. The psychotic subjects reported a lack of daydreaming during psychotic periods. Their inability to initiate daydream fantasy was interpreted in terms of an inability to play.
5. Subjects were noted at times to tend to locate images at the receptor site or in the sensory field rather than in their mind.
6. It was noted on the Rorschach that subjects tended to show a particular perceptual style which was described as similar to a field dependent style.

Recommendations were made for further studies both in terms of improvement of methodology and for further testing of proposed hypotheses.

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INTRODUCTION

This study grew out of a curiosity as to why certain individuals develop a particularly bizarre and indecipherable pathological symptom--hallucinations. An hallucination is commonly defined as the sensory experience of an object in the absence of the actual object with the attendant belief that the object was really there. Although their occurrence is by no means limited to those who are psychopathological, it is essentially hallucinations in a psychiatric population that are of concern here.

The study of hallucination presents some considerable difficulties. The hallucinatory event itself is relatively a private event; the primary data available is the subject's report of his experience. In addition the recipients of these experiences are considered to be especially unreliable in their testimony. These particular difficulties have both considerably discouraged the study of hallucinations and, as we shall see, influenced the methods used by those who have attempted to understand this phenomenon. Clinically we find ourselves in an ironic position: hallucinations are regarded as indicative of relatively severe pathology, and yet there is little general agreement as to what the mechanisms of the hallucinatory process are. This lack of understanding of the hallucinatory process is of special significance at the present time in that we find ourselves in the peculiar position of being able to treat or stamp out these experiences through the use of the major tranquilizers while they retain their quality of strangeness and bizzareness for the vast majority of us who have

not had such experiences. Laing (1965, 1967) and Sarbin and Juhasz (1967, 1968) have pointed out the pejorative and oppressive potential to which treatment within such a context is susceptible.

This investigation is an exploratory study which seeks to describe the imaging abilities and the characteristic use of imagery of a group of hallucinating psychiatric patients. In doing so its intent is to identify some distinguishing characteristics of the cognitive functioning of hallucinating individuals which predispose them to or contribute to the development of pathological hallucinations. The decision to utilize this method derived from a consideration of prior theories of and research into hallucinations. The review and evaluation of the literature on hallucinations to follow provides an extended rationale for this approach and hopefully will provide a context for the consideration of the results of this study.

CHAPTER I

REVIEW OF THE LITERATURE

The majority of attention to the phenomena of the hallucination has involved theoretical speculation as opposed to systematic research. Banished along with the study of imagery in the 1920's, it has largely been ignored, until recently, by experimental psychology. As a result, the gross outline of a survey of theories of hallucination includes most prominently those most involved in the study of psychopathology, the psychoanalysts. Their speculations found some application in the investigation of a variety of analogue laboratory procedures which aroused interest in the late 1950's and early 1960's.

With the return of legitimacy to the study of imagery, there has been a renewal of interest in hallucinations among experimentalists as reflected in the work of Theodore Sarbin (1967, 1971) and Sydny Segal (1970). A final approach to be included in this survey, because of its marked contrast to the scientific viewpoint, is that of the phenomenologists Merleau-Ponty and Erwin Stauss.

I. PSYCHOANALYTIC APPROACHES

As is true of most forms of psychopathology, the most important early scientific speculation concerning hallucinations was made by Freud. Although analytic conceptions of hallucinations have undergone considerable extension and revision, Freud's ideas provided the original direction of thinking on the problem. Initially, Freud (1898) conceived of hallucination as a primary process experience. In primary

process the distinction between what is real and what is imagined cannot be made. As such, they are primitive phenomena and have their origin in the initial life of the infant. The young infant's experience is dominated by his need for pleasurable gratification in the form of food and comfort. Hallucinations result from the unavailability of need-satisfying objects and mark his attempts to produce previously experienced gratifications. When denied, the infant's needs provide energy for and give rise to "hallucinated" images of gratifying objects. Distinction comes to be made between an actual gratifying object and the imagined one when discharge of the need is inhibited by secondary processes. In later elaboration of these secondary physical processes Freud (1911) emphasized the function of delay and of attention. Delay of discharge allows the infant time to assess whether satisfaction is forthcoming (whether the image exists in the real world). Determination of the reality of the image comes about through the activity of the muscle system. (External stimuli can be avoided, internal cannot.) In attending, the infant searches the external world perceptually to find a match for the gratifying memory image. This allows the infant a reality-oriented alternative.

Hallucination represented for Freud a very primitive and wish-dominated level of functioning. Reality testing remained functional as long as one remained attentive to the perceptual world, but when attention is withdrawn, as in sleep, consciousness would fill with wishful fantasy. Hallucinations thus were seen as akin to the early psychic experience of the infant and to dreaming.

Some have taken a minor exception with some of Freud's

pronouncements, especially with his assertion that motor activity provided the basis for the internal-external distinction. For example, Sherwin and Toussieng (1965) pointed out that some internal stimuli can be removed by muscular activity (by defecation for instance) while loud external sounds are difficult to avoid. Garma (1969) suggests an alternative basis for the discriminative judgment. He suggested that perceptions that cannot readily be controlled are judged to be outside and real while those that can be controlled are judged to be inside and imagined.

Others have made major expansions upon Freud's conception of hallucination, expansions consistent with the new directions analytic thinking has taken. This redirection has been chiefly in two directions--represented by the egoanalytic and object relations theorists.

Rapaport's (1951) accounts of the phenomena of thinking, though relying heavily upon Freud's characterization of its origin and development, represent a considerable extension along egoanalytic lines and involved a shift of emphasis from motivation and gratification to relatively enduring organizations of adaptation and defense. In his description of pathological thinking, Rapaport did not attend to hallucinations in particular, except for hypnogogic hallucinations which he regarded as quite different from schizophrenic hallucinations, but he did describe relevant parameters of the schizophrenic's impaired thinking and reality testing. He viewed schizophrenic thinking as a particular state of consciousness characterized by a typical cognitive structure. Cognitive structures refer to "both those quasi-permanent means which cognitive processes use and do not have to create de novo

each time and those quasi-permanent organizations of such means that are the framework for the individual's cognitive processes" (1967, p. 631). Different cognitive structures vary along a number of subjective dimensions which include level of awareness, degree of drive vs conceptual organization of thinking, frame of reference, level of control and defense, degree of volition, and the formal characteristics of thought (type of logic, mode, etc.).

For Rapaport (1951) schizophrenic thinking differed from the normal thinking both in its cathected dynamics (cathexix withdrawn from external reality) and in the organization of thought. Among the features of its organization which he described were that it was more drive organized than normal with more perverse, morbid, and impulsive content. It included an inability to discriminate a frame of reference, one aspect of which is the blurring in the ability to distinguish between states of consciousness. He cites, for example, the inability to discriminate between dream and waking states as more frequent among schizophrenics. A third observation he noted was a tendency for a breakdown in the boundary between person and environment characterized by confusion as to the source and ownership of one's thoughts.

Additionally Rapaport (1951) identified "level of awareness" as an important characterizing dimension of the cognitive state. He described level of awareness as a continuum. At one point was awareness that one is aware typical of normal consciousness and heightened in certain drug, meditative, and other insightful states; at the other was awareness of only a content without any awareness of being aware. The level of

awareness varies with the level of impulse control. When control is weak, as in schizophrenia, one begins to lose distance, become caught up in the affective conflict, and to lose what he calls reflective awareness, the awareness of being aware. This decrease in level of awareness is paralleled by a deterioration in reality testing. Rapaport (1951) elaborated little upon reflective awareness in his writing, but he seemed to sense its descriptive importance with respect to reality testing and such phenomena as insight and the depotentiation of affect. In reference to reality testing Rapaport states, "[reflective awareness] seems to be a sub-species of the function that distinguishes imagery from hallucination and percept, thought from reality" (1951, p. 634).

Schafer (1968) speaks briefly of a similar notion--reflective self-representation, which he feels is crucial in the maintenance of adequate reality testing. He means by the term "the awareness by the person that he is the thinker of the thought" (1968, p. 69). These concepts seem to precisely describe a central insufficiency of the hallucinator in that he acts without awareness that he is the imager of the image.

As can already be seen, in analytic thinking the problem of hallucination had become intertwined with the concept of reality testing. Hartman (1953) regarded reality testing as a primary function of the ego. In elaborating on this ego function, he described it as consisting of three developmentally successive layers. Distinguishing ideas from perceptions represents the most basic layer. In the second layer, the accuracy of perception is assumed, but the concern is with

whether a correct meaning is attributed to them or whether subjectively valued factors are taken as objective qualities. The third is what Hartman calls inner reality testing which involves consciousness of the subjective elements of our experience--our feelings, motives, wishes, self-perceptions, and perception of others. It is perhaps best characterized as insightfulness. Hartman views this series on a dimension of an increasing level of adaptation. Ekstein (1971) takes up Hartman's notion of inner reality testing, citing the importance of the concept in relation to psychotic functioning. He observed that reality testing process in the psychotic differs from reality testing in the neurotic.

It had been assumed that reality testing was based upon the use of external criteria to test the reality of an inner or outer percept. While this is true of the normal individual, Ekstein asserts that the psychotic uses highly ideosyncratic internal criteria for validation. Although the psychotic may show a diminished awareness of or contact with external reality, he does evidence an active inner life which represents reality to him. An external reality which does not fit the criteria of his inner reality is denied or distorted, just as a normal or neurotic individual might dismiss an inner experience that does not conform to external criteria. He notes "in contrast to the usual analytic approach with the neurotic, where the pursuit of material is in the service of restoring unconscious content--with the psychotic, the pursuit is to re-establish the wish to re-cathect reality episodes and advanced functions" (1971, p. 29). The psychotic's retreat involved his basic belief that gratification is obtainable only within

his inner reality. (Early experiences have taught him that participation in external reality brings him only frustration and fear of threat.) He sums, "whereas the neurotic is in close continuity with the external reality but experiences discontinuity with the unconscious, the psychotic is in close continuity with the primary process and experiences discontinuity with external reality, which results in the psychotic having only fragmentary islands of secondary process functioning" (1971, p. 30).

The second group which has realigned analytic theory, has described the development of hallucinations in terms of object relations. Jacobsen (1964) has noted that initially the infant is not able to distinguish between himself and others or between his sensations and the objects which arouse them. Jacobsen observed that in early childhood the self is frequently imbued with qualities of object images and fantasies of merging, and fusion with the object are quite common.

Modell (1961) further elaborates on the hallucinator's early object relations, emphasizing the "important other figure." In attempting to relate hallucinations to psychic structure, he takes issue with an assertion by Freud that hallucinations are related to super-ego functioning (Freud, 1933). Freud's observations of auditory hallucinations had led him to the idea that the separating off of an observing function from the rest of the ego might be a normal feature of the ego's structure. Modell had observed in his patients that the hallucinations were not only judgmental and punishing but also helpful and advising at times. While the voices could be traced to persons who were formerly significant in the patient's lives, they were frequently fused with

the self in that they had access to the patients' thoughts and memories. He notes,

> the voices are identified as formerly loved persons, principally the parents, who in some unexplained way are fused to the self. These voice objects function as parents in terms of giving advice and being a source of prohibitions, and also in gratifying wishes stemming from all states of infantile development. They are constant objects and the parient is the center of their world; this fulfills the fantasy that the child is the only object of the parent's world, a fantasy that defends against the reality of separation and preserves the early diadic mother-child relationship (1961, p. 170).

Harris (1969) also relates hallucinations to incorporated important others'; in attempting to trace the origins of hallucinations he emphasizes the schizophrenic's fundamental difficulty in grasping a "sense of self." Laing (1965) has described the schizophrenic's separation of his experience of self from his experience of his body. This false unembodied self becomes the center of the personality and for Harris it represents a first step in a structural regression. This stage is frequently accompanied by feelings of detachment, depersonalization, and derealization.

The second step in the process, described by Harris (1969), occurs when the individual tries to substitute the representation and imagery of "an important other figure" in his life for the missing self representation. This new false self represents an attempt to "give himself a substance and a feeling of existence" and may involve considerable delusion. Harris views hallucinations in the context of this stage. They are "the emergence into the conscious field of attention of imagery which is related to a structure which is not the self" (1969, p. 271). The object representation which has become self-

representation initially functions as an intrapsychic network which absorbs feelings. When the person becomes flooded with feelings these structures begin to fragment into their component images. The source of action is no longer attributed to the object-represented self but to an outside source.

To summarize, these analytic approaches have attempted to describe the dynamics and personality structure of the psychotic which is felt to underlie the hallucinator's difficulties with reality. The ego-analytic and object-relations developments of general Freudian theory have taken different emphases--the ego-analytic emphasizing cognitive process, the object-relationists emphasizing dynamics and psychic structure, but both remain largely reconstructive in method trying to incorporate their clinical observations of pathological hallucinations into their theories of development. Their influence has remained primarily clinical; neither has been complemented very fully by experimental research on hallucinations. However, more general Freudian theory, it will be seen, has been used as a background for a number of laboratory analogue procedures.

II. ANALYTICALLY RELATED ANALOGUE APPROACHES

The analogue studies, though they belie an inexplicit Freudian influence, represent an attempt to study hallucinations in a more specific and systematic fashion. West (1962) proposed an analytically based theory constructed on the assumption that the same "mechanisms" underlying the dream hallucination also underlie all other forms of hallucinations. He felt that the critical question was why dreams did

not occur 24 hours a day instead of only when one is sleeping. They do not occur, he speculated, because of an active inhibiting process which occurs as follows: all our experiences and sensations are recorded as neurological structures--engrams, traces, etc. These recordings constantly seek to emerge into awareness. They are inhibited from awareness because our brains are being constantly bombarded with a multitude of sensations from stimuli within our bodies and from the outside world. This input "has an inhibiting effect on the emergence into awareness of previous perceptions" (1962, p. 242). If the outside input falls below a critical level, these past sensations begin to intrude (the "engrams are released"). The perceptions are dynamically organized and are re-experienced as fantasies, dreams, or hallucinations. In the psychiatric patient, the withdrawal from reality serves to disinhibit these pressing neural energies. In support of this theory West cites a number of situations involving "withdrawal from reality" which serve to release hallucinatory behavior such as hypnosis, sensory isolation, monotonous work, and hallucinogenic drugs.

His theory represented his synthesizing effort as editor of a published collection of analogue studies presented as an American Psychiatric Association "Symposium on Hallucination" in 1958. These analogue phenomena had aroused a great deal of interest because of their implicative potential. Eleven years later another conference on hallucinations was held, this time by the Eastern Psychiatric Association, and its proceedings were also published (Keup, 1970). It is interesting to follow up on work done in these areas of research potential over that 11 year span.

Feinberg (1970) described a research project begun almost 10 years earlier involving hallucinations and dreaming. The discovery of REM sleep and refinement in its measurement had allowed a more detailed study of the dreaming process. Feinberg reasoned that if the hallucinations of schizophrenics were related to aberrant functioning of those processes which normally produce hallucinations during sleep, hallucinators should show some alteration in their dream patterns. This proved not to be the case. Schizophrenic hallucinators showed no departure from normal REM sleep patterns. Delirium (drug withdrawal) hallucinators showed marked suppression of REM sleep, which Feinberg felt sharply differentiates the drug-induced and psychotic hallucinations.

Sensory deprivation produced phenomena which initially led researchers to believe they could produce and study hallucinations in the laboratory. Zukerman (1970), in a review of 15 years of research on hallucinations in sensory deprivation conditions, commented on the fate of this assumption:

> In the early days of the SD work many loose associations were made between SD phenomena and psychosis. Actually most of the visual hallucinatory phenomena resemble drug-induced hallucinations rather than psychotic hallucinations. Most SD hallucinations are fleeting, impersonal phenomena of little dynamic significance. They are not usually accompanied by intense affect, and are not fitted into a delusional system. Most subjects do not believe in the phenomena for any length of time even though they may "look" or "sound" real at the moment (p. 144).

Further, researchers prefer to refer to the imagery elicited in sensory deprivation as "reported auditory or visual stimuli" rather than as hallucinations because of the difficulty in determining whether the subject really thought the stimuli were real. The study of sensory

deprivation has not fulfilled the promise some initially invested in it, to contribute to an understanding of the hallucinations of psychosis.

Hypnotic hallucinations are another type viewed as analogous to psychotic hallucinations, but recently Barber (1970) has questioned the methodology of the hypnotic research in determining if in fact the subject had indeed hallucinated. Using non-hypnotized controls who were merely directed to see a particular object, he obtained a percentage of subjects reporting that they actually saw the object which approximated results in hypnotic studies. While not disproving that hallucinations occur under hypnosis, his research has pointed up the necessity for care in determining the degree to which a subject perceived the suggested object as real.

West's reliance in part on physiological mechanisms in the construction of his theory reflects the fact that a major portion of the 1958 conference on hallucination was devoted to neurophysiological research. Hallucinogenic drugs at the time had a focal role in this neurophysiological research. It was at first assumed that they mimicked psychotic symtoms and in particular hallucinations. The same status had once been given to hallucinations in organic brain syndromes and alcohol withdrawal. However, as researchers became more familiar with the type of hallucinations each produced, it became apparent that these phenomena are quite distinct, both phenomenally and physiologically (Feinberg, 1970).

The utility of the analogue approach lies in the fact that if identical sorts of experiences are elicited under other, more

regulatable conditions, the mechanisms used to explain the analogous situation might also be used to explain the schizophrenic hallucination. Unfortunately, no such short cut solutions have presented themselves as yet. Further, while these phenomena initially looked remarkably similar to psychotic hallucinations, closer examination has revealed that there are some very basic differences between them. But while the analogue approach has in general fizzled, there remains one active and as yet promising area of hallucinatory analogue research--Sydney Segal's work on the Perky effect.

III. SEGAL AND THE PERKY EFFECT

For Segal, the individual's distinction of image and percept is a judgment or decision. This "reality decision" is determined by the context and the expectations and past experience of the individual. These three usually occur to the extent that the process is virtually errorless and as a result largely automatic and not attended to. Segal maintains that "in certain unique and/or unfamiliar situations, where past experience is an unreliable guide and sensory input is brief and unrepeatable, it may not be easy to differentiate a perception, an illusion, a vivid image, and an hallucination" (1970, p. 104). It is in such a situation that the reality decision becomes more visible and therefore can be studied.

Unlike the other theories described, Segal's speculation stems from laboratory research. The "certain unique and/or unfamiliar situation" used by Segal to study the reality decision is an experimental technique originally employed by Perky (1910). In the Perky

effect studies the subject is seated before a translucent window and instructed to imagine a form or an object at a spot on the window. While the subject images, a brief faint photo of the imaged object (banana, etc.) is projected onto the window from behind it. In Perky's original study (1910) none of his subjects reported seeing the supraliminal stimulus. Most maintained disbelief when later informed of the projection. Some even unknowingly incorporated fragments of the stimulus into their images. For example, most imagined the banana as upright (like the stimulus), expressing surprise that it was not lying flat.

Segal (1964), in an attempt to replicate the Perky effect, was surprised to find that only 25% of his subjects reacted as Perky's subjects had. He speculated that these differences were due to the nature of the subject populations used. Perky worked in Titchner's laboratory and his subjects were trained introspectionists who expected to see their "images." Segal's subjects were college students of the early 1960's whom he characterized as skeptical, questioning, and expecting to be tricked. In further replications he found that he could increase the percentage of subjects failing to detect the stimulus in a variety of ways--by manipulating the context (use of a visual field restricting hood), by heightening expectancy (use of a relaxing placebo), by reducing information regarding stimulus, by varying the instructions ("like sensory deprivation"), by altering stimulus characteristics, and by changing body position (Segal, 1964; 1965; 1969).

Initially, Segal seemed to feel that the accuracy of the subject's response was not dependent upon whether the subject was imaging or

not. However, it began to be very clear that the accuracy was affected by the presence of an image. In the absence of an image the detection rate was typically about 80%, but when instructed to image, the detection rate dropped to 50-60%. Segal hypothesized two possible explanations for this effect. The first, towards which he initially leaned, was that imaging diverted the subject's attention and that he was therefore less observant. The second hypothesis was that the image had "certain specific sensory effects" which would lower the subject's sensitivity to the signal.

As a "critical experiment" to distinguish between these two hypotheses, Segal (1969, 1970) utilized a signal detection task in which the subjects were required to detect alternately a visual and an auditory signal while attempting to get a visual or auditory image. If imaging produced an attention effect then one would expect either a visual or auditory image to hamper detection of both the visual or auditory signals. However, if the image produces specific sensory effects, a visual image should hamper detection only of the visual signal, an auditory image only of an auditory signal. Quite to his surprise Segal found the latter to be the case, the suppressing effect of the image was specific to the particular mode of the image. He considered this as supporting the notion that the image had sensory effects and he further concluded that the sensory effects of the image were very similar to the sensory effects of the signal.

Segal summarizes his thinking, developed from his research observations, on the differentiation of image and percept as follows:

> . . . we all perceive, we all image, we all hallucinate; there is no difference in the cognitive experiences of the schizophrenic, the hallucinating drug addict, and the college student in this regard. What varies in this regard are the patterns of past experience, individual differences, contextual probabilities, expectancies and biases that each one brings to the task, a process that passes as judgment. . . . It is probably also true that the "voices" of the schizophrenic and a melody imagined by a composer are similar events, and may be further equated to the normal sensory processing of physical sounds (1970, p. 14).

IV. SARBIN'S LINGUISTIC APPROACH

Sarbin's work is primarily theoretical, and its basis on observation and experimentation is limited. It stems from his linguistic analysis of psychological conceptualization and is part of an attempt to reconceptualize psychological questions and methods.

Sarbin's concern with hallucinations stems from his dissatisfaction with the traditional psychiatric conceptualization of hallucinations as symptoms of pathology--as symptoms of a disease entity, namely schizophrenia. In its current use as a defining criterion of psychosis, he feels the label is applied in a highly discriminatory fashion and serves as a "mentalistic pejorative."

In contrast to those who see the hallucination as regressive, unusual, or qualitatively distinct, he views the hallucinatory experience as similar in process and continuous with normal imagings. Sarbin (1967) feels that an understanding of hallucinations must begin with attention to the way in which the term is used and to the context within which it is used. Rather than initially asking "what is an hallucination?," he felt a more properly phrased question is "what are the antecedant and concurrent conditions that lead a person publicly to report his imagings in such a way as to lead a psychiatrist, psychologist,

or other professional to designate the described imagings as hallucinations?" To provide an answer he further breaks this formulation into three further questions.

The first question is "how does the claimed experience come about?" What events lead to novel or unusual (for the individual) imagings? They occur, he posits, in the course of efforts to solve problems. Following Dewey's (1933) description of how we think, Sarbin identifies the hallucination as akin to a creative act. The hallucinator is usually one who has undergone unpleasant and disequilibriating experiences, and is faced with the problem of locating himself in various ecologies (e.g., with respect to the social ecology--"Who am I?" or to the transcendant ecology--"Who am I in relation to God?") "When biographical factors and/or stimulus conditions make it difficult to form answers to these questions--to establish one's social identity or to place oneself in relation to transcendental objects--a condition of cognitive strain is created" (1967, p. 362). This corresponds to Dewey's first stage of problem solving--a problem (in which one places considerable importance) is felt or sensed. In the second stage the individual narrows his attention to objects and events that may have relevance to the solution of the problem. Some of the events attended to may be associated with a heightened physiological arousal accompanying cognitive strain. Sarbin seems to imply that stress can intensify the imaging behavior of an individual, although there is little experimental data on the question.

In the third step "an occurrence gives rise to novel or strange inputs." Such inputs may function to reorganize the current structure

of knowledge. Under such reorganization a solution may emerge which "fills the gap" in knowledge that created the problem in the first place" (1967, p. 363). Such an event may be an occurrence in the world at large, such as an accident or catastrophe. This leads to the formation of a belief (delusion, insight, etc.). But the event might also be an imaging (which may be labeled a vision, fantasy, dream, or hallucination).

But how does such a novel or unusual imaging arise? Sarbin speculates as to several possibilities. In his early imaging studies Galton had described individuals as employing a particular dominant imagery. Sarbin surmises that under strain a visualizer may experience imagery that is predominantly auditory and hence unfamiliar. Or, he suggests, the novel imagery may be physiologically based, the person may have an intersensory, synesthesic experience where one sensory modality calls up responses in other modalities. Sarbin notes that Werner (1948) has characterized early perception as synchretic. Each would afford the person an imagery experience which the individual may experience as unusual and strange and which he must explain in some way.

In answer to the first question he posed, "how does the experience come about?"--Sarbin sums, "the main thrust of my argument is that through these ordinary psychological processes a person may have a covert experience at a time when he is striving for a solution to an important existential problem. This experience may serve as a key to a reorganization of his knowledge structure" (1967, p. 365).

Secondly, Sarbin asks, "What leads some people to publicly report their imagings?" He lists the novelty of the event--the desire

to make public solutions found to be problems of whom one is so that one can be recognized (i.e., the son of God, etc.), to avert one's attention from an unpleasant event, and the presence of an appropriate audience. However, more important may be how the subject reports the imagery events, how he qualifies his report. This leads to Sarbin's last question--"Under what conditions does a reported imaging become labeled an hallucination by a professional diagnostician?"

The decision of the professional diagnostician is based on a chain of inferences. The immediate data, the hallucinatory experience itself, is not immediately available to him. His only basis is the report of the person. Sarbin points out that in his analysis of the statements of the imager, the diagnostician must first of all decide whether the statements are true or false--whether the reported events "actually occurred." If he decides they were not actual perceptions, he is faced with the problem of determining how the patient intended what he said, and here the language sophistication of the imager comes into play. If he clarifies his intent with qualifiers such as "as if," "it was like," "it seemed like," "I imagined," or "I thought I saw," he is protected. But if the imager uses elliptical sentences, if he leaves out these qualifiers, as is common with persons with limited language skills and with poets as well, the diagnoser faces further difficulties. He must infer whether the person intended the qualifiers. Sarbin (1967) points out that

> expressing the concept of as if requires a fair degree of linguistic skill. Thus when a four year old child insists on talking to an imaginary playmate, the "as if" is supplied by the mother and the child is not likely to be referred to a therapist for help in stamping out hallucinations. When

> reading the productions of great poets, the reader supplies the suppressed "as if." In order to interpret any sentence properly, the listener must consider the total context, i.e., he must be ready to supply the missing qualifiers.

Much the same is true in the metaphorical use of the verb "to see." The problems involved in inferring the intent of the imager in saying he "saw" is made apparent when one considers that the Oxford English Dictionary (1911) contains 26 meanings for the verb "see" in addition to the common one of veridical visual perception. Barber (1964) has shown that in hypnotic hallucinatory experiments careful distinction in the instructions as to the use of "hearing" something lowers considerably the number of subjects who claim to have actually "heard" or hallucinated. Some degree of confusion in meaning of these terms between the diagnoser and imager is quite possible.

Another linguistic aspect of the diagnoser's inferences regarding the imager's statements betrays the dualism underlying their approach. Consider the example "I see elephants." The diagnoser begins with a focus on the object of the perception--elephants. In doing so, the questions he faces are "Were there any elephants in the immediate proximity for him to see?" If not, then the object of the experience is placed "inside" the person. He assumes that the experience inferred from the statement is of the same logical type as that which would occur if elephants were present.

An entirely different focus emerges if the point of departure, rather than the object "elephants," is taken to be the predicate "seeing elephants." The question of locating the object in space is no longer of primary importance. It becomes more important to

understand "why the person is seeing elephants" and "what meaning has seeing elephants for him." (In the context of the diagnostic and therapeutic relationship these are very different concerns.)

With respect to these linguistic problems Sarbin concludes,

> The choice of words and the syntactical arrangement are not sufficient criteria for the diagnoser to make a confident judgment of hallucination unless he is willing to run the risk of mislabelling the imaginal and verbal products or poets and playwrights and nearly everyone else. Since spoken or written reports may obscure truth through ellipses and metaphors, the diagnoser has no choice but to use as his raw data observations other than the spoken or written reports of imaging. The other observations focus on the psychological status conferred on the suspected hallucinations concurrent with his other statuses, such as mental hospital patient, novelist, poet, etc. (1967, p. 367).

Another problem inherent in the diagnostician's focus upon object of the report occurs when the ontologies (the reality status of various objects) of the diagnoser and imager differ. The diagnoser's vision of reality is a strictly materialistic one. His reality is manipulatable and measurable. Seldom does the imager have the same strict scientific training and his reality may contain various transcendental objects--ghosts, God, a guardian angel, etc. Sarbin (1967), in an article on the history of the concept of hallucination, has shown that what is taken to be real has varied widely at different times among different groups. The diagnoser runs a serious risk in imposing his conception of reality upon the imager. Finally, the diagnoser makes inferences as to whether the imager is confusing an image with a percept and whether his reports are consensually validatable. To demonstrate the equivocal nature of such criteria he cites a study done with Juhasz and Todd (1971). Their subjects were a group of

normals and a group of hospitalized schizophrenics. The subjects were led to believe that several glasses of water in front of them contained weak salt solutions of increasing strength. An ascending method of limits was used, the subject's task being to sample each and say when he tasted salt. They found that significantly more of their normal subjects reported tasting salt than schizophrenics. Many were willing to testify under oath that they had tasted salt. Sarbin asks, "Should these subjects be considered out of touch with reality when they merely are more responsive to the situational demands than the schizophrenic group." In summary, Sarbin concludes that none of the diagnostic criteria he examined are unequivocal and that the diagnostic decision is ultimately based on other observations, namely the status of the imager. For Sarbin, hallucinating is not an insidious process, foreign to normal experience. The hallucinator's beliefs may be different, and his imagings may have a different meaning and importance to him, but he is not functioning any differently from normals.

V. PHENOMENOLOGICAL THEORIES

The phenomenologists Merleau-Ponty and Erwin Strauss, though their ideas about hallucination are quite different from Sarbin's, share with him a rejection of Cartesian dualisism. Their categories derive from intention and action rather than from the status of the object (inner-outer, real-unreal, etc.) and therefore stand in marked contrast to traditional scientific thinking. A discussion of the phenomenologists' point of view is included here following Sarbin in an effort to make clear just how different

these two ways of looking at the phenomena are from the others mentioned in this survey.

Merleau-Ponty (1962) and Strauss (1961) both posit that hallucinations are indecipherable from a strictly scientific viewpoint. The scientist's error, they contend, lies in the misperception of our relationship to the world and in the reduction of consciousness to the level of objective being. Hallucinations occur at a level prior to objective thought, on the level of the percept which "despite all critical education, remains on the hither side of doubt and demonstration" (Merleau-Ponty, 1962, p. 344).

The scientist, Merleau-Ponty (1962), further points out errors in that when the hallucinator declares that he sees and hears, the scientist believes him. He assumes the hallucinator's experience to be of the same logical type as objective thought. But rather than assuming what the hallucinator means to convey about his experience, we find that when we look closely at his experience, the hallucinator does not use "hear" and "see" in the same sense as in sane consciousness. When the hallucinator says that he hears or sees, he at the same time denies its status as a sensory content. Merleau-Ponty cites the following illustrations:

> The all-important point is that patients, most of the time, discriminate between the hallucinations and their perceptions. Schizophrenics who experience tactile hallucinations of pricking or of an electric current jump when they feel an injection or a real electric shock: "That time," they say to the doctor, "you were the cause of it, because you are going to operate" (1962, p. 342).

In addition hallucinations transcend sensory limits as in extracampine hallucinations (i.e., seeing people behind oneself, hearing voices through thick walls).

But if hallucinations are not sensory contents, neither are they judgments. Judgment implies reflection. But at the prelogical level of sensation and hallucination, experience is immediate, lived through, and inherently emotional. It is the realm prior to reflection or objective thought. Strauss (1961) describes this level.

> The real is that and only that which acts and seizes an experiencing creature. That something is real means that something happens to me. . . . It is in this region, this prelogical sphere, in which hallucinations occur. Hallucinations do not yield to argument. The immediateness of experience permits no doubt. Hallucinations are not in competition with the rest of a patient's perceptions. In fact the reality of voices eclipses the reality of all other data and thwarts the effect of any rational analysis of circumstances (p. 236).

In the view of the phenomenalist the hallucination is played out on a separate stage. It occurs as a sudden rift in the phenomenal world. It is not experienced as part of the world, but co-terminous with it. While not a perception, it has the value of reality for the hallucinator. Its significance lies not, as for the scientist, in its explanation, but rather in its expression of the person's "being-in-the-world," of his intentional stance towards it. For the phenomenalist the task becomes not to explain the hallucinations of an individual, but to understand them as they reflect the intentional stance to the world.

VI. SUMMARY AND EVALUATION

What do we really know about psychotic hallucinations?

Each of these theories and approaches has offered a coherent and to varying degrees compelling explanation of pathological hallucinations. Yet, a survey of them can leave one with a feeling of

uneasiness and vague dissatisfaction--a feeling that one can explain hallucinations and yet a lurking feeling that at the same time, as Goldstone (1961) has suggested, we know very little about them at all.

The approach of each has been almost exclusively deductive. Consequently each of the theories bears some guilt of Merleau-Ponty's accusation that they essentially "construct" hallucination. Their theories begin from their idea of what hallucination is rather than from careful attention to the phenomena itself. This was especially visible in the discussion of several of the analogue approaches, and perhaps less true of the psychoanalysts. But for the most part, their aim seems to have been not so much to study hallucination in its own right as to incorporate it into a particular theory.

The situation with the study of hallucination illustrates the difficulties which occur in relying too exclusively on a deductive theoretical approach. The different theories represent a partial view, and hence involves distortions. Each resembles one of the blind men who went up and touched an elephant in a different place and tried to describe it. Unfortunately, as in the assuredness of the blind men, theories tend to give one a false sense of knowing--a sense that one has hold of what hallucinations really are. This serves only to entrench one's view and both limits and restricts further observation.

But perhaps the most relevant criticism to someone who is struggling with how to approach a phenomena like hallucinations is that their points of conflict often lead to pseudo-questions derived from theory rather than a confrontation with the thing to be known.

Do hallucinations involve judgments, as Segal suggests, or are they prior to objective thought, as Strauss contends? Are images and percepts discernible in conscious experience (Merleau-Ponty) or are they phenomenally and physiologically similar (Segal)? Do they require a special state of consciousness (Rapaport) or regression to a primitive mode of thought (Freud)? Such questions reveal how prone the discussion of hallucination is to becoming embedded in philosophical argument. One decides such questions in the same way one decides which church to join.

In criticizing current attempts to understand hallucinations, I do not mean to entirely question the value of these theories or of a deductive approach. Some of this work has had a beneficial impact on clinical practice. This is especially true of the object relations notions and the work of Ekstein which have rich implications concerning the meaning of these symptoms and Rapaport's work which has contributed to diagnostic procedures and suggest fruitful strategies for therapy. My criticism is that given what little attention there has been to the phenomena itself these theories are premature and provide a shaky and restricted source of hypotheses for future research. We know little about the characteristics of hallucinators. We cannot predict before the fact that one person is likely to adapt under certain conditions by hallucinating while another with emotional problems equally severe and under these same conditions will not. We know very little about what those certain antecedant and concurrent conditions of psychotic hallucinations might be.

It was at first my intention to test several hypotheses derived from various theories of hallucination. But the uneasiness I have described, with what we actually know about hallucinations and hallucinators suggested to me that a more inductive, observational approach would be more appropriate, and that first it was necessary to find out more about hallucinators, what they actually do and how they act. The theories, it seemed, would best be referred to in retrospect rather than as a starting point.

But what would be a fruitful domain of behavior for observation? This question led me to a survey of the literature which involved the use of psychotic, hallucinating subjects. In this survey, I found some very interesting and surprising results--results which suggested to me a method and some seemingly fruitful questions.

CHAPTER III

REVIEW OF THE LITERATURE ON THE PERCEPTION AND IMAGERY OF HALLUCINATORS

The study of hallucination has had an unusual and ironic course, since very few of those who study hallucinations have experienced or lived through them. Yet, most of the research intended to lead to an understanding of hallucinations has involved normal subjects and analogous normal experiences. The studies using precisely those people who have had the experience are in a minority.

The research using psychotic hallucinators as subjects can arbitrarily be divided for purposes of clarity into studies of their perceptual behavior and studies of their imaginative behavior.

I. PERCEPTUAL STUDIES

A considerable number of perceptual studies have been done with schizophrenics as a group. However, only a few have used hallucinating schizophrenics specifically. Reis (1959) had noted from his clinical practice that contrary to the accepted notion hallucinations are perceptions in the absence of sensory stimuli, his patients seemed to hallucinate "just at the time that certain sounds such as the rustling of paper, the sound of footsteps or voices in a nearby room, the sound of an automobile passing, etc. actually can be heard" (1959, p. 368). He tested his observation with seven of his hallucinating patients. He placed his subjects in a sound-treated cubicle and piped in a tone at two levels of intensity--above and below threshold. He varied these

levels along with periods in which there was no sound. Subjects were instructed to signal him at the onset and offset of their auditory hallucination ("whenever you hear anyone say anything at all"). Only one subject reported hallucinations in the absence of audible sound. All other subjects reported hallucinations only when audible sound was available. Reis interpreted his results as suggesting hallucinations were like illusions in that they involved distortion of sensory stimuli and differed only in the severity of the distortion.

Caston (1969) looked at a phenomenon he called "completion effects" in hallucinatory patients. Completion effects involve the unwitting perceptual completion of an incomplete stimulus. He likened this phenomenon to hallucinations in that (1) it does not correspond to an actual physical entity in the environment; (2) it is phenomonologically perceived as "out there"; and (3) it is taken as real. Caston tested three groups of 17 subjects, a group of hallucinating patients, a matched group (sex, diagnosis, chronicity) of non-hallucinatory patients, and a normal group. They were presented a number of circles composed of dots in varying degrees of completion on a tachistoscope (40m sec). In his procedure Caston included a measure of attention. He found that his hallucinatory subjects showed less attention and a greater tendency to completion effects. Moreover, the attention effects when statistically removed did not effect completion differences. He speculated from his results that the underlying process in hallucination involved first a decreased attention outward and consequently an increased attention to internal events. Regarding the completion effects he speculated that hallucinators, in responding with

less complex form responses, show an "inappropriately greater accessibility of simpler, i.e., more "primitive," sets of criteria for perceptual identification.

III. IMAGERY STUDIES

While the perceptual studies are few and isolated, the studies of the imagery of hallucinators seemed to form a more coherent picture and ultimately serves as the point of departure for this study. The bulk of the studies on hallucinator's imagery appeared in the 1930's and 1940's. However, the roots of this line of research lie in the speculation made by early psychologists near the turn of the century. One root came from the theorizing on the nature of imagery by Fechner (1889) and the experimental work by Galton (1883). They classified individuals according to imagery type. Their distinctions were based on the mode of imagery most frequently employed. Galton managed to collect considerable data on the relative distribution of the various types.

A second route is represented by a series of writers who conceived of hallucinations simply as an exaggeration or intensification of normal imagery. Prince (1922) wrote that "the hallucination is due to the emergence into consciousness of previously subconscious images. . . . The psychological problem of differentiating between normal imagery and hallucinations disappears in that they are identical, the hallucination being the normal imagery of a dissociated subconscious process" (as cited in Cohen, 1938, p. 285). This view of hallucinations as essentially externally projected images is echoed

by a number of others (Binet, 1884; Sully, 1881). The early observations of Schilder (1933) also lent some impetus to this view. He compared certain phenomenal characteristics of imagery and certain "hallucinatory like" phenomena such as eidetic images, after-images, and tachiatoscopic perceptions and concluded that "imagination, hallucination, and perception follow the same laws" (p. 597). He also pointed out the need for a structural description of hallucinatory phenomena to complement the already abundant clinical descriptions and speculations.

Mourge (1932) has been cited as the first person to systematically examine the relationship between a psychotic's hallucinations and his imagery. He reported on only one subject, a patient who had auditory hallucinations. His concern was whether someone with "so called auditory or verbal-motor hallucinations would also manifest a corresponding imagery type." He determined, however, that while the hallucinations were auditory, his patients' imagery type was visual.

Limited though this study was, it served as a point of departure for a much more extensive study by Cohen (1938). His interest was (1) whether or not the imagery types of schizophrenics were different from that of normal individuals and (2) the nature of the relationship of their imagery types to such symptoms as hallucinations, delusions, and activity disturbances. His method was similar to Mourge's (1932) but he used a more extensive test of imagery mode preference, a list of 130 words and phrases to which the subject was required to describe the mode of the image which the stimulus conveyed. The test was borrowed from Griffitts (1927). His subjects included a group of 19

patients diagnosed as schizophrenic who had had hallucinations and on whom he had obtained extensive historical and observational data and a normal group of 19 aides at the hospital who roughly matched the patients in terms of age and socio-economic background. Among his results he reported that while his normal group used predominantly auditory and visual modes, the schizophrenic group used predominantly kinesthetic and tactual modes. Concerning the question of the relationship between predominant image mode and hallucinations, he found that for hallucinators with predominantly auditory and visual imagery, imagery type was unrelated to the hallucinatory modality. However, he found a strong positive relationship when the predominant imagery mode was kinesthetic or tactual.

However, Cohen's results must be tempered with skepticism in light of several apparent methodological flaws. First of all, his inadequately explained decision to classify "hearing persecutory voices threatening harm" as kinesthetic hallucinations could have heavily weighted the kinesthetic category at the expense of the auditory category of hallucinations. Considering that 18 of 19 of the schizophrenic group were diagnosed as paranoid, this distortion in his data is highly likely. In addition, an attempt at replication and extension of this study several years later by Snyder and Cohen (1940) was unsuccessful. They found in the replication that they could not discriminate hallucinators from normals on the basis of imagery type and this led them to question Cohen's (1938) previous results. Cohen's original sample had contained patients who were severely disturbed and reconsideration led them to conclude that for these patients, the lengthy imagery test may have been more a measure of confusion than of imagery type.

In 1945 Roman and Landis published a study in which their intention was to take issue with Schilder's assumption that hallucinations were an exaggeration of normal mental processes. They collected evidence on (1) the clarity of hallucinator's imagery and (2) the degree of subjective similarity between images and hallucinatory phenomena among psychotics. They used a structured interview in which they gave the subject a scene to imagine and asked him if he got a clear image. A vivid imager was one who reported a clear image. If the subject reported no image, he was classified as a weak imager. They found that of the 20 subjects who experienced auditory hallucinations, 18 had vivid auditory imagery and all 20 had vivid visual imagery. Both the subjects who had had visual hallucinations were classified as having vivid auditory and visual imagery. All of Roman and Landis' patients reported that they could distinguish between the images requested of them and their hallucinations.

Roman and Landis interpreted their subjects' ability to distinguish between an image and an hallucination as a "failure to confirm the hypothesis that auditory hallucinations are exaggerations of mental imagery." However, they made little of their results concerning vividness of imagery, possibly because of their zeal to disconfirm the conception of hallucinations as akin to imagery. Their results did contain suggestions for further research concerning the nature of the role of vividness of imagination in hallucinating.

The next study to appear, done by Seitz and Molhalm (1947) persisted in the focus on imagery type but provided apparently the first adequately designed research in the area. They set about with

the same aim as Roman and Landis (1945)--to lay to rest the concept that hallucinations are exaggerations of normal imagery. The immediate aim of their experimental design was to make a definitive statement about the relationship between imaging ability and hallucinations. They again used Griffitt's test. They reported results on 40 schizophrenic subjects and 10 patients who had recovered from alcoholic hallucinosis. The schizophrenic subjects formed two groups of 20, one of which was selected on the basis of having experienced unequivocal auditory hallucinations. The other group had not had auditory hallucinations. All 10 alcoholic patients had had marked auditory hallucinations.

Seitz and Molhalm's results were quite striking. They listed their results as a percentage of responses in each modality for each subject. The subjects with auditory hallucinations had a markedly low percentage of auditory imagery. Their percentage was significantly below that of the non-hallucinating subjects. Many of the subjects in both groups had experienced hallucinations in other modalities. These results parallel quite closely those for auditory hallucinations. A patient showed a marked deficit in the use of or preference for imagery in the particular mode in which he hallucinated. Seitz and Molhalm concluded that with respect to auditory hallucinations their study "implies that relatively deficient auditory imagery is a point of vulnerability and that it is characteristic of the patient rather than of his mental illness. . . . One of the factors responsible for auditory hallucinations is relatively deficient auditory imagery" (p. 478). As striking as these results were, they were not unexpected. There had been suggestion in Mourge's (1932) study and in Cohen's

(1938) somewhat suspect data of this same relationship.

At about the same time, some independent support for Seitz and Molhalm's (1947) results was published in a study by Thale, Gabrio, and Soloman (1947). Cohen (1938) had reported fewer auditory and visual responses from hallucinating schizophrenics than from normals. Thale, Gabrio, and Soloman (1947) questioned "whether deficient imagery is an effect of hallucinations or a factor predisposing to them." Their subjects were six schizophrenics (hallucinatory and non-hallucinatory) and one hospitalized patient diagnosed as neurotic. Because Thale et al. (1947) used a test-retest design they included a control group of 7 normal subjects. They attempted to induce hallucinations through the administration of mescaline. Subjects were given Griffitt's test two days prior to and immediately after the ingestion of mescaline. Their results of concern here were that the subjects "who have fewer responses of the type 'I see it' when asked to imagine situations were more likely to (visually) hallucinate than other patients." Thale et al. (1947) concluded that a low visual imagery score predisposed a person to visual hallucinations. Caution must be used in weighing their results because of the low number of subjects, but they do offer some support to Seltz and Molhalm's (1947) findings.

Following the Seltz and Molhalm (1947) study, there is an absence of studies bearing on imagery and schizophrenic hallucinations for 25 years. In the next study to appear, Alpert and Mintz (1972) noted the preoccupation of previous studies with the measure of imagery types and the relative neglect of the variable of vividness of imagery. Roman and Landis (1945) had provided some preliminary evidence that

the capacity for vivid imagery might be related to hallucinating. An additional observation which lent support to this hypothesis, they noted, was the fact that the frequency of auditory and visual hallucinations among schizophrenics was roughly equal to the frequency of vivid auditory and visual imagery in the general population. Galton (1883) had reported that about 10% of a large group of adults he had sampled had the faculty of seeing pictures in their mind's eye. Spanos and Barber (1938) had reported that 40% of their sample experienced vivid auditory imagery. Malitz and Sanford (1962) found that 50% of schizophrenics they randomly sampled experienced auditory hallucinations and 9% had visual hallucinations. Alpert and Mintz reasoned that vivid imagery coupled with faulty reality testing ascribed to schizophrenics resulted in hallucinations. They attempted to test their hypothesis by studying three groups of 20 subjects each--a group of auditory hallucinators, a group of non-hallucinating schizophrenics, and a third control group of non-psychotic psychiatric patients. They borrowed their test of vividness of auditory imagery from Spanos and Barber (1968). It was a very simple test, designed to discriminate grossly a group who reported being able to clearly imagine a suggested auditory image from a group who reported not being able to do so. The subjects were told to close their eyes and listen to a phonograph record playing the words and music of White Christmas. They were then asked to check one of four statements that described their experience:

(A) "I heard a phonograph record clearly and believed that the record was actually playing."

(B) "I heard the phonograph record clearly, but knew there was no record actually playing."

(C) "I had a vague impression of hearing a record playing."

(D) "I did not hear the record."

Those checking (A) or (B) on this Likert type scale were classed as vivid imagers, while those checking (C) or (D) were classed as weak imagers.

In order to determine "impaired reality testing" they played for the subject a number of recorded sentences masked with background noise. The sentences varied in intelligibility. The subject was asked to guess what the sentence said and to note on a six-point scale his confidence level of the correctness of his response. Mintz and Alpert thus obtained an accuracy score and a measure of "awareness of distortions introduced into perceptions." Their results indicated that as predicted a very high percentage of hallucinators had vivid imagery and a low percentage of non-hallucinating schizophrenics showed vivid imagery. In addition the hallucinators showed less awareness of the perceptual errors that they had made compared with the other two groups. They reasoned from their data that "the defect underlying hallucination formation may reside in the process by which an individual discriminates his imagery from exteroceptive stimuli" (p. 478). They also concluded that the capacity for vivid imagery and "defective reality testing" are both prerequisites for hallucinating.

The rhetoric accompanying the studies reviewed above might lead one to believe that there is considerable disagreement and inconsistency in the results that have been reported concerning the relationship between imaginative ability and hallucinations. Richardson (1969) has commented on this disagreement as has Reed (1972). This discrepancy,

however, is more apparent than real. The confusion stems from the use of two quite distinct measures to characterize imagery ability. Seitz and Molhalm (1947) and Thale et al. (1947), for example, characterize imagery as weak or deficient if a particular mode is infrequently used. Alpert and Mintz (1972), on the other hand, characterize weak imaging ability as being unable to form vivid images. What emerges from inspection of the data collected in these studies is the consistent finding that (1) a hallucinator tends not to prefer or to use as frequently for imagery the mode in which he hallucinates and (2) the capacity for vivid imagery, especially in the hallucinatory mode, is prerequisite for hallucination.

In addition, several other difficulties are apparent in these studies which have impeded clarity in utilizing this particular approach for researching hallucinations. First of all, in an attempt to confirm or disconfirm the involvement of imaging in the hallucinatory process, all of the investigators cited, with the possible exception of Cohen (1938), seem to have anticipated that the relationship between imaging behavior and hallucinating, if actual, is a simple one--that it will involve frequent use of mode or the capacity for vivid imaging. The data suggest that the actual relationship may be considerably more complex.

While understating the potential complexity of the issue they seem to have overestimated their ability to resolve the issue. Their polemic concerns are obvious, leading Roman and Landis, for example, even so far as to ignore some very apparent implications of their results. In seeking to settle an issue rather than raise new questions,

the body of the research has been alarmingly unproductive in stimulating or generating further research. In not one of these studies is there suggestions of additional or emergent questions for future investigations.

Finally these studies have been very neglectful in the comprehensiveness and in some cases the adequacy of their methods. The focus has been on relatively limited aspects of imaging, the methods limited to constricted tasks and scaler measures. An adequate description of the imagining of the hallucinators requires a considerably wider focus. Although a considerable variety of tasks and measurement instruments are available for providing such a description, they have yet to be utilized in this approach.

The investigation of the imagery of hallucinators offers itself as one possibly fruitful way to learn more about the hallucinatory process. It bears promise on both intuitive and empirical grounds. If hallucinations are imagery, as is commonly assumed, then it would seem worthwhile to understand the nature of the hallucinator's imaging ability and how he uses it. Empirical support for the notion that the imagery of hallucinators shows some particular characteristics was found in the results of earlier studies. Their suggestion of a possible predisposing style of imaging is a possible step towards answering the question of why some psychotics develop hallucinations while others do not.

This approach is additionally desirable in that it involves the use of subjects who have actually experienced hallucinations and it lends itself to an inductive, observational method as opposed to a deductive, exclusively hypothesis-testing one. The lack of use of

hallucinatory subjects and overindulgence in speculation were seen as notable defects in much of the previous research.

CHAPTER IV

PURPOSE AND HYPOTHESIS

The purpose of the present study is to describe the imaging ability and the pattern of use of imagery of a group of subjects who have experienced pathological hallucinations. Two hypotheses are to be tested, involving the replication of earlier findings: (1) hallucinators have vivid imaging ability, especially in the mode in which they hallucinate, and (2) hallucinators tend to use less frequently the mode of imagery in which they hallucinate. Replication of the first hypothesis is desirable because only one previous study (Mintz and Alpert, 1972) has examined this variable. The latter hypothesis requires study because it emerged from the inspection of the results of a number of studies (Seltz and Molhalm, 1947; Thale, 1947; Mourge, 1932) whose intent was quite different from the present study.

However, the primary intent of this study is to generate hypotheses rather than to test them. Its intent also is to observe a more varied sample of imaging behavior compared with previous studies, which have been markedly limited in the range of imaginative behaviors they have examined. It is hoped that a wide focus and lack of expectancy as to the results will allow the emergence and identification of relevant characteristics of hallucinator's imaging ability and imagery use deserving of later more detailed study.

CHAPTER V

RESULTS

The results will be presented in case history form. Each case history will include a brief history, a description of the subject's hallucinatory experiences, and a description of performance on the imagery tests and of his responses to the imagery interview. The test scores for each individual are listed in Table I of Appendix A.

I. SUBJECT 1

Subject # 1 is a 38 year old white, divorced mother of two who has been living with her elderly Polish born mother in New York. She had left New York very abruptly, a month earlier, after a phone conversation with her ex-husband, whom she continues to see although she has been divorced from him for 12 years, and who "still has unlimited power" over the patient. She said she had been headed for Nashville, but got on the wrong bus. She was picked up in a very confused state by the police at the bus station and brought to Eastern State Psychiatric Hospital.

On admission she was described as confused, uncooperative, delusional, and hallucinating. She had been hospitalized three weeks prior to the start of the interviews. At the time of the interviews her condition had cleared considerably. She appeared neatly dressed, although her slightly greying hair was uncombed. Initially she seemed very anxious during the interviews--she spoke very quickly, taking short breaths, her hands trembled noticeably. She was eager to

cooperate, saying she "realized the importance of scientific research in mental health" but conveyed an air of tense alertness and suspicion which slowly receded as the interviews progressed. Her anxiousness remained and even heightened as the date of her discharge and return to New York approached but her concerns seemed increasingly realistic and aimed at coping with her duties at home. She sought to use the interviews as a source of support, frequently bringing up her concern about her return home, seeking assurance about her improvement and her plans for handling herself.

The subject described having an extensive educational background, with degrees in philosophy and language and had done graduate work at Yeshiva University. She had been employed somewhat irregularly as a library archivist and as a substitute teacher. She described her deceased father, who was a rabbi and had a Ph.D in social sciences, as having "thought the world of her" and spoke as though enraptured of having been his "pride and joy." Her elderly mother was at home and helped care for her two children--a daughter, 8, who is "exceptionally intelligent," and to whom she is devoted, and who seemed to be strongly favored and a son, 15, who "is sick, too. I suppose he inherited it from me." She has difficulty getting along with him and he is presently institutionalized.

The cause of her illness was unclear from her description but she apparently had several hospitalizations of from 10 days to 3 months and had been under psychiatric care since her early 20's. She said that she had been intermittantly delusional throughout college but that her teachers made allowances because of her exceptional ability.

Hallucinations and Related Delusions

Subject # 1 said that her hallucinations began when she was in her early 20's, that she had had intermittent bouts of their occurrence, but that each time "with pills and therapy I forgot about them." She described them as intense visual experiences, as dramas into which she would withdraw. They followed a recurrent theme and were closely intertwined with the delusion of falling in love with and being won by an important historic figure. Most frequently she was a beautiful princess during the middle ages in the court of Genghis Kahn. She believed herself married to one of his generals. Her visual experience she described as "like a dream full of drama and romance and I was watching." The experience was intense, she believed what she saw in fantasy was real. She described her general in vivid detail and believed him present. The mode was exclusively visual, there were no voices or bodily sense involved. When others intruded upon her fantasy, she frequently incorporated them as characters in the drama, as she did her surroundings, but she did not act out the fantasies.

The patient differentiated her delusions from her hallucinations as solely beliefs she had about herself and others, which did not involve the degree of withdrawal that her hallucinations did. Prior to leaving New York she believed herself an important world figure involved in the negotiations between Israel and the Arabs. She had been responsible for outsmarting the Arabs in the talks and there was a plot to kill her. She believed that even her mother was involved in the plot and this forced her flight.

The patient's hallucinations produced in her feelings of ecstasy.

"They fill me with ecstasy, so rich and provocative, the ecstasy would carry me away. I enjoyed every moment of them." At the time of the testing, this seductive feeling of ecstasy was of concern to her, she greatly feared giving in to it. "I'm bothered now by the thought that comes to mind that I might wish to destroy myself for the sake of a dream. I realize that to give in to the ecstasy of the delusions and hallucinations would be to give up myself in reality. The dreaming took my life away, my youth."

She described this lure as becoming stronger the more her problems of being a good mother and earning a living became of concern to her. She fought the pull of the fantasy by "socializing more with other people. I realize I have to go out of my way to keep myself involved with others, to keep myself in touch with reality."

Imagery

Dreaming. When actively psychotic, she reports that "my dreams are like the delusions and hallucinations. When I wake up I believe them." At the time of the testing she said she continued to dream about the same themes of falling in love with important people but that "Now only for about 5 minutes I believe them. Now I socialize more at breakfast trying to be part of the others." She denied all but rare nightmares but said that while her dreams presently were pleasant, she feared them, feared that they would carry over.

Daydreaming. She identified her daydreaming with her delusions and hallucinations: "Yes, well my delusions, they were like my day-dreams. . . .With me the daydreams were real." She reported no other

daydreaming of any other content. It seemed she became very involved in her daydreaming, losing awareness that she was in fact daydreaming, perceiving the daydreams as real in that at the time that was the reality she was consumed by and involved in. At present she avoids indulging in daydreaming for fear that her wishful fantasies would become real for her.

Imagery tasks. The most noticeable of her imagery were her exclusive use of the visual mode and her almost total inability to determine the content of her imagery. Regardless of instructions ("use of particular mode") or the object to be imagined her immediate response (latency of one second) was a visual image while other modes were difficult or impossible to image in. Her inability to control her imagery would not allow her to complete the formal imagery tests. Her poor control can be illustrated in examples from her responses to the open-ended imagery tasks. When asked to imagine a penny she "saw almost like a dollar sign at first and then it seemed to change to a pack of cigarettes." When asked to imagine her breakfast, she responded, "I saw a sandwich stuffed with something. The bread was whole wheat. Inside it was pinkish like ham or something, but I didn't have that this morning. I had eggs and a roll." Determinants of the content were seldom clear, although there sometimes was contamination from her image to a preceding item and frequently she related the image to her home, her daughter, and her concern about her return to New York.

The vividness of her imagery could not be determined by ratings because of her inability to complete the Betts Scale, but when asked

to rate the visual images she did get she rated them generally vague, though several images she did report as being very clear. She seemed to have the capacity for vivid visual imagery but seemed to deliberately try to tone it down. For example, when asked to imagine the smell of an orange, she said "no I can't. It's visual, halfway by my nose. Only half an orange. If I see it all, it will be more a delusion, more real."

Another noticeable quality of her imagery was her literal and passive receptive way of relating to it. Some examples may make clearer what I mean. When asked to imagine a recording of White Christmas, she said, "I didn't hear it. I said it to myself, could hear myself saying it. I couldn't hear external sounds that aren't there." Her response implies some expectancy on her part to actually hear an auditory image.

When asked to pretend feeling certain moods she could only reflect how she felt at the time. She could not pretend or imagine any alteration in her mood. Examiner: Can you pretend feeling happy? "No, I can't, but I'm not suffering like I used to." Examiner: Sad? "A little sad, but no I don't feel too sad today." Examiner: Angry? "A little, I just feel angry about what's happened to me in my life, to have these hallucinations."

II. SUBJECT 3

Subject # 3, a 31 year old white married female, was hospitalized on her sixth admission. Her first admission, at the age of 25, had been in 1969. Her hospital stays averaged about one month. She

had carried a variety of diagnoses--personality disorder, hysterical character, schizo-affective schizophrenia, and most recently, manic-depressive psychosis. Presenting symptoms upon admission were usually either loud, belligerant behavior with rapid mood swings, flightiness, and confusion, or sullen, withdrawn depression where she would sit for hours just staring.

The subject has been separated off and on from her husband, who plans presently to divorce her and has been living with her mother, operating a beauty shop several days a week. Her two children, ages eleven and one and one-half, are cared for by her mother-in-law.

In her appearance at the time of the interviews, the subject was a plump woman of average height, whose tight, colorful, but not expensive looking clothes tended to bulge. She was very heavily made up, her hair was neatly combed, she carried a purse, wore numerous rings, and smoked long, thin cigars. She related in a superficial, overly pleasant manner, with an instant broad smile the moment she would begin to interact and would frequently initiate conversation about the weather, the interviewer's health, etc. She was markedly flirtatious in her manner, speaking to every man she would pass on the way to the interview room. Extraverted and exhibitionistic, she was disappointed to learn that her name would not be used in the study. Her moods were given to sudden changes. Although she was usually cooperative and overly obliging, at times she would become very hostile, threatening to throw a tantrum of rage. Several sessions had to be terminated because of her abrupt anger. Her behavior seemed characterizable as immature, manipulative and impulsive. She seemed quite

comfortable with her hospitalization, showed little insight into her difficulties, and assumed a generally carefree attitude.

Hallucinations

The subject described having had both auditory and visual hallucinations. Those that she reported seemed to be isolated events and were not incorporated into a delusional system. Her auditory hallucinations involve a little bird talking to her. She described one experience as follows: "One day I was standing in the kitchen, and I heard a bird say 'Take your medicine.' I guess I hadn't been feeling well." She mimicked the voice of the bird, a high squeaky voice. "It might have been a whipperwill." She said that she had her windows open and that there were birds in the yard. "It might have been one of them." Although she said the bird had spoken to her at other times, she was unable to recall any other particular incidents. This was the only voice admitted to, although her husband had reported that he thought she had heard voices when she was in her depressed moods.

She described having had two visual hallucinations. Her description of one is as follows: "I've seen Jesus. One night I was pretty well out of this world. Everyone had gone to bed. I was feeling pretty afraid, my mind was all cluttered. I was by myself, that's when you're most alone, you know. I went out on the porch and looked up. There was a bright moon and He was standing in front of it. He was just standing there wearing a white robe, He had long hair and a beard. He was standing like that (arms open). I told my mother that

He came to keep me safe." The patient said she then went to bed and felt much safer.

Of the second incident she said: "I have a daughter 17 months old. It was a difficult delivery. One night at home--everything seems to happen at night--I was weak and scared. I felt I was going to die. I could feel myself shrinking, dying. The baby was in the room with me. I kissed my husband's ring. I have two lamps on the dresser with a band around them. I saw the high priest (from the Bible) in the band. He had on a black coat with white trim and a pointed hat they wear. He stayed with me all night and I didn't die."

Imagery

Dreams. Although the subject reported dreaming two to three times a week, she said she seldom ever remembered her dreams. In fact, she could only relate one dream, an especially vivid one which had recurred several times. It was "my dream about heaven--first dream that ever really stuck with me." Her description was extremely sparse and the content of the dream seemed quite immature. She related little more than that the heaven was filled with candy houses and that a character she called Mr. P. was in it. Mr. P. was someone she had known as a child.

Daydreams. With respect to daydreaming, she said, "I don't daydream." It was apparent that she knew what daydreams were but she maintained "I don't do it." She seemed to spend little time attending to her thoughts or consciously directing them. However, the next day she proudly reported that she had had a daydream, "cause you

asked me about it, so I had one." Her description again was sparse. "It was about America during the revolution and an assembly line. The assembly line was one back during the war. (During war with Germany) My family and relatives worked at Alcoa and Oak Ridge." Her daydream involved no progression of events, just this condensed scene. From further questioning it became clear that she had closed her eyes with the intention of having a daydream and the image had come to her. This she related as her daydream.

Imagery tasks. The tests indicated that she could get vivid images in all modes (means for all sensory modes on Bett's Test were less than 3.5), that she used a variety of modes but favored the auditory and visual modes (Griffitt's Test scores--visual, 36 percent, and auditory, 40 percent), and that she was able to control her images in all modes. On the Gordon Test, she was able to control at least four of the six images in each mode. From the open-ended imagery interview, however, it was apparent that the control indicated on the Gordon Test was illusory. Typically, while she could get the requested image, it was very fleeting, followed by a cascade of vivid visual images. At times she was unable to get the requested images, getting irrelevant images instead. Also, the less controlled her images were, the richer and more involved they seemed. Several examples will illustrate: Penny--"I don't see a penny, I see a half dollar or silver dollar. I see where they make it--a melting pot. I see Washington D.C., cherry trees. . . ." (images came instantaneously and in quick succession). When asked to try again she said, "I saw

a penney but it turned into a dollar. I see the Liberty Bell now. . . ." When asked to get an image of the breakfast table she described seeing a huge array of breakfast foods; however, it was not what she had had for breakfast. When she did get the requested images, they were lavishly embellished and embedded in a more complex scene. The intrusive imagery was often related to her moods, for example, images of a dried-up mud puddle cracking, and a volcano erupting preceded her sudden display of anger towards the testing.

Two features were noted which allowed the subject to enhance control over her images. With eyes closed, control was very poor. When she would open her eyes, although the image was still richly embellished, it seemed to last longer and the intrusive images were reduced. Additionally, control was worst in the visual mode when she was attending to her visual images. When attending to images in other modes, i.e., touch, smell, her visual imagery seemed somewhat more stable.

III. SUBJECT 4

Subject # 4 is a 24 year old single white male who had been admitted to the hospital two weeks prior to testing. It was his third hospitalization. On the current admission, he had been brought in by the police of his hometown, a relatively small semi-rural city, after a farmer had reported that he had pulled his car into the driveway, got out and began shouting that he was going to disappear. The subject's explanation was that he was looking for his wife. Relatives reported that recently he had frequently wandered off in his car.

The subject's first admission came when he was 18, two months after his graduation from high school and the death of his mother. Up to the time of her death, from cancer, he had been living with his mother. His parents had separated, his mother had remarried. His older brother, the only sibling, was in the Army. Hospital records indicate that the subject was hospitalized because he was becoming increasingly withdrawn, laying in bed all the time, and reporting that he could not feel any emotion because he had been hypnotized by his high school principal. He was released as improved after one month and went to live with his grandparents. He worked for a short period as a janitor, but lost the job because he was becoming too slow, and his memory was becoming poor. Within six months, he had returned to the hospital, this time staying shortly over a year.

In the four years since his last admission the subject had been living with his father and had several temporary jobs, none lasting long and none in the last year. His lifestyle was described on the admission notes as "leaving much time for fantasy and withdrawal. He has no close relationships and slips into his delusional world."

The subject was of average height, slightly built, and wore glasses. He was neat in appearance, although plainly dressed. He cooperated in a submissive manner and seemed only minimally involved in the interviews. His movement was very slow and unaffected. His expression remained blank, except for occasional inappropriate smiles. He related his smiling to things that his wife, an imaginary companion, said to him. He spoke only after a pause, in a slow, matter of fact manner, initiating little conversation. However, he freely volunteered

quite a bit of detail about his delusions during the interviews. During the interviews he frequently smoked his pipe and stood, in order to slowly pace the floor ("It relaxes me"). When the interviews would end, he would slowly and unaffectedly walk off, without saying a word.

Hallucinations and Related Delusions

The subject described having had both auditory and visual hallucinations. The visual hallucinations he reported were isolated events, all of which occured while he was in high school. In the first incident , he reported "seeing blood." While the boy behind him was talking to the subject's "girlfriend, trying to get her to go out with me", he saw blood suspended in the air in front of him. He said it surprised him and frightened him a little. About the reality of it he said, "Well if it was imagined, someone made me imagine it. I'd say someone made me see that blood, its not like an ordinary vision." (he was referring to its lack of meaning to him). When asked if he thought he'd seen real blood, he said, "No, I'd say it was an illusion."

Another time while in Art class, the subject said he saw a crucifix on the wall, which he then painted. He said the art teacher acted "real strange" although the subject did not know whether she saw it. He said he didn't believe it a whole lot at first, but that he became convinced he hadn't imagined it. He "wasn't a real good person at the time." He felt God was reminding him that Christ had died for his sins.

A third vision had occurred during a World History class. The subject said he saw Abraham Lincoln get shot and a man jump off a

banister. He said he did not see all of it, that he "couldn't get the other people in the class to be quiet." He said he would have liked to have seen the rest. The subject described the scene as seeming "to be out in front of me but was part of my mind." He believed it had been a form of telepathy, that "there was a way you can go back in history", but that he was not sure how the thoughts got into his mind.

The subject's auditory hallucinations are more recent, but on close examination, can only hesitatingly be called hallucinations. They involve primarily an imaginary companion, his "wife." She controlled his mind, putting thoughts into his head. He frequently reported that his wife had been saying things to him during the interview. Her communications consisted primarily of "yes, that's right, I said that." She spoke in "the same tone of voice as myself." He located them in his mind and identified them with his thoughts, only "they aren't mine, someone puts them there--my wife." He doesn't see his wife. "She wants me to be more in reality than if I saw her. I used to see her when she first came around. It was her or her imagination, one or the other. She used to work here. We married through Extra Sensory Perception."

Imagery

Dreams. A pervasive attribute of all the subject's imagery was that he disowned it. With respect to his dreams, he recalled them only "when my wife remembers them for me." When he dreams, he feels that "someone else's spirit is in me", that he is having someone else's

dreams. "Sometimes I dream about somebody else, I become part of that person." The patient had poor recall for specific dreams but more frequently he was left with a feeling or mood when he awoke. He equated such experiences with nightmares and described a recent example of such an experience: "Well, I woke up, I felt scared and depressed the other night. Reckon someone made me, I don't have emotions." When the patient was asked who might want to make him feel this way he said, "My wife; she makes me feel bad at times--depressed--so I'd be blessed. I sure have been blessed for it. God made me his adopted son."

Daydreaming. The subject denied having daydreams. "I hadn't thought since I can't remember. I had a pretty good imagination. I used to daydream when I was in school--get pictures, you know. But I don't anymore. Used to daydream all the time in school. My grades weren't too good." When the patient was asked what his daydreams were about, he said, "Things I'd like to be and like to do. Like if I felt angry, I'd imagine hitting someone. Sometimes about President Nixon coming to visit me or marrying a businessman's daughter or about hippies." The subject stated that he had not daydreamed since his mind was taken away from him. "A real bad feeling came over me, I couldn't hardly stand it. Can't remember what it was. Even forgot the ABC's." He felt that "my enemies took my inborn genius." He said that his high school principal, who worked for the FBI, had hypotized him, taking his mind away, so that they (the FBI) could use him. He presently served as advisor to the director of the FBI, adding, "I have back pay coming but I doubt if I'll ever get it."

Imagery tasks. The subject's responses to the imagery tasks he also attributed to his wife, frequently reminding the interviewer, "It's not me that's imagining this, it's my wife." With respect to vividness, his images typically lacked clarity or detail (on the Bett's Test, only auditory (3.2) and kinesthetic (3.2) modes were below 3.5). He reported no images of particular or excessive vividness. He would qualify his responses with "just barely", "not very clear", and commented on its vagueness (e.g. "looking at the plate, some stuff on it, nothing special"). He did frequently report on the colorfulness of his images; this seemed to be the most striking feature of his images to him. "Not very clear, colorful contrasts though." (Penny) "saw the copper color, thought that it was a penny". The vividness he reported varied some from day to day. He would comment, "My wife, she's been off today, she hasn't been imagining too much."

The subject's preference for mode seemed predominantly visual. On the Griffitts Tests 85% of his responses were visual, whereas 12% were auditory. He had particular difficulty with tactile and kinesthetic images, sometimes reporting a visual image without any accompanying sensation or feeling.

The subject's control of his imagery was adequate but marginal. Difficulties in control consisted primarily in getting an image rather than in the intrusion of unwanted images, although unintended images were occasional and exclusively visual. On the Gordon Test, visual images were the most difficult for him to control (2/6), while control of other modes was more adequate.

Several qualitative aspects of the subject's responses were noted. He seemed at times, in describing his images, to relate the vividness of an image to the reality of it. For example, "It wasn't very clear, it was imaginary, it wasn't the real thing."

Also, the subject seemed to react to the instructions at times very literally, having difficulty assuming a set of pretending or imagining, and tending to assume a more passive perceptual set. When asked in the free fantasy procedure to close his eyes and report whatever came to mind, he reported "lights like red when you close your eyes." When asked to imagine the taste of his favorite food, he reported, "Bout all I could taste was the pipe I just got through smoking." With the auditory task involvingimagining the lyrics of a song being sung on a record, while he knew the words to it, he was not sure if his wife knew them. It turned out that she did know a few of the words. This literalizing tendency suggests that perhaps he sometimes listens or tastes rather than conjuring an image. Something similar was evident in his approach to the Rorschach Test. He showed a tendancy to lose distance in that he seemed to expect that each card was a whole, that each part meant something, and that some meaning was intended in the card. For example, he made comments such as: "wonder what they intended to make when they did that?" and "can't figure out what that red part means."

Finally he seemed to resist the imagining tasks. His submissive manner of relating made non-compliance difficult for him. Resistance to it might have laid behind his attributing his imagery to his wife. The lack of clarity of his images seemed that it might have served this

same purpose. At one point where the interview began to digress, he remarked, "I like talking like this better than I do looking at my wife's imagination."

Evidence on the Rorschach Test further supported his attempts to avoid feelings. The Rorschach indicated that he is in considerable struggle to resist being overcome by depression, as evident in a frequent theme of a dark black hovering effect (his word to describe feeling) from which a figure is trying to flee. Also evident is a fear of his emotional reactions getting out of balance and of a situation of danger then developing.

IV. SUBJECT 5

Subject # 5 is a 34 year old black female, married and mother of two. Her current admission was her 14th, her first having been when she was 25. At the time of the first admission, she was delusional and hallucinating. Typically, with medication her psychotic symptoms will remit, she will leave the hospital after about a one month stay, discontinue her medication while at home, and upon return of her paranoid suspicions and her hallucinations, she will require readmission.

Admission is usually precipitated by suspicious jealousy and considerable animosity towards her husband, paranoid feelings that her husband and neighbors mean to do her harm, and persistent bothering of the family of her former physician, who has become a figure of prominence in her delusions and her hallucinations.

In appearance, she was heavily set, with roundish features. She was neatly dressed and took apparent care to be well-groomed and made-up

for each interview. She spoke in a very soft but affected tone. Her language and diction seemed quite above what one might expect from someone who had gone no further than the ninth grade in school and could not read or write. She was consistently very cooperative, eager to help and impress the interviewer on all but one occasion. That day she seemed quite hostile and upset, claiming that one of the aids had tried to rape her the night before. She seemed eager to relate to a professional on a peer basis and to put herself above the other patients. "I help my husband, Nathan, quite a bit. I try to help the other patients as much as I can." Her manner was generally coquetish.

Hallucinations

The subject reported hallucinations in three modalities--visual, auditory, and olfactory. She was currently experiencing hallucinations at the time of the testing. Most of her hallucinations involved an imagery companion, a white doctor to whom she was married, named Nathan.

The visual hallucinations involve pictures shown her by Nathan. She does not actually see her husband unless he shows her pictures. The patient believed that he could show her pictures through control of her mind. He had shown her pictures of herself when she was three months old, which convinced her that she had known him as early as then. He had shown her pictures of their wedding "so I'd know for sure that we were really married", since she was concerned because she was having sex with Nathan. (She hadn't experienced the marriage ceremony, or at least couldn't recall it.) She claimed that it was only with Nathan that she ever experienced an orgasm. "With Henry (her actual

husband) it was like he was always raping me. But he's the devil, you know."

Auditory hallucinations occurred to her during the interviews and involved communications from Nathan. For example, when asked to imagine an apple, she said, looking quite embarrassed, "A voice just told me he wasn't going to show me no pictures of an apple, he's showing me pictures of himself. He likes to play. He said he was going to make it real big." She described his voice as she did every aspect of her companion in dramatic and superlative terms: "a very firm, kind voice, he's the most powerful person in the world." She also claimed to be able to communicate with her children through telepathy, that she could hear them in her mind.

The olfactory hallucinations involved smells of food Nathan was eating, as well as less innocuous smells. She claimed that she could tell when her husband was with another woman because she could smell the body odors of the other woman. This would occur at home while her husband is away.

Imagery

Dreams. The subject reported having frequent and vivid dreams, primarily of either beautiful or morbid content. She held the belief that her dreams came true. She related several examples of where she dreamed about events prior to their occurrence. These were essentially of a wishful nature (for example, finding money on the street), and reflect a specific instance of her belief in the omnipotence of her mental abilities. She attributes responsibility for these powers to

Nathan, however. Hallucinatory content appeared in her dreams. She described dreaming about Nathan and helping him in his work as a doctor. The hallucinatory and delusional material began to appear in her dreams sometime after the initial occurence of the hallucinations.

Daydreaming. The subject reported daydreaming, but from her descriptions of them, it was apparent that she equated daydreaming with her hallucinations: "I daydream, I see things that aren't there." The content of the dreams involved Nathan, and her involvement with him, such as helping him on the job. Her attitude towards these events were that they really happened and that Nathan was describing them to her and showing her pictures of them. Although she located the pictures and voices in her mind, she did not experience any initiative or control over them nor did she attribute them to mind wandering. The pictures and voices participated in a reality of their own and were instigated by someone other than herself.

Her daydreams were oriented primarily towards the present. She described no other daydreaming activity other than the hallucinatory material, although she was questioned thoroughly about other forms of daydreaming.

Imagery tasks. The subject's performance on the imagery tasks and tests varied quite a bit. On particular items she would be unable to form an image, reporting only seeing darkness, while at other times she would report a profuse string of vivid, unbidden, visual images, often of very acrid and morbid content. The vividness of her imagery

likewise ranged widely from being unable to get an image to images which were as vivid as if actually present. She reported vivid images in all modalities. Her preference for mode on the Griffitts Test was exclusively visual (only one non-visual response). Her responses on the Gordon Test revealed that her control was poorest in the modes in which she hallucinated--visual (1/6), auditory (1/6), and olfactory (1/6). In addition, she was unable to imagine or pretend somatic feelings or moods. She seemed tied to how she felt at the present. This lack of control in the hallucinatory modalities, with adequate control in the other modes was paralleled by her responses on the open-ended imagery tests. On visual tasks, she either could not get an image or saw unrelated items. On auditory tasks, she would typically experience an unbidden visual image, along with hearing sounds other than what was asked for. On olfactory tasks, she would typically report smells other than what was asked for. Although on the tactual, gustatory, and motor tasks, she would report a series of images, she was usually able to initially report the image requested.

The subject regarded none of her imagery as intentional. Responsibility and control of it was partitioned to her imaginary companion. While for the most part, she seemed amused by the cascade of images, even of the most morbid scenes, she seemed at times fearful that her image might become real to her. For example, an image of a grapefruit, perhaps because of its vivid and sudden appearance, caused her to exclaim, "Oh my God," and ask, "God wouldn't make that come true, would He?"

V. SUBJECT 6

Subject # 6 is a 29 year old divorced white male, on his first psychiatric admission, who had been diagnosed as having a "hysterical character disorder." He had been hospitalized because of a suicide attempt in which he had cut himself across the chest and stomach with a razor. Although he had contemplated suicide in the past, this had been his first attempt. During the past year he had been having what he described as "drawing spells" where his fingers and mouth would draw up. He would break out in red spots which lasted about 15 minutes, and he would feel weak and faint. After fainting at supper one evening, he had gone to the local hospital for treatment. Refused treatment because he lacked insurance, he returned home and during a state in which he had little awareness of what he was doing and of which he had little recollection, he went to the bathroom and cut himself three times with the razor. After "coming to" and realizing what he had done, he drove himself to the hospital for treatment.

The subject had had previous dissociative sleep experiences but this was his first such experience while awake and the first in which he had acted violently.

Divorced two years ago after six years of marriage, he had been experiencing increasing civil strife in his life of late. He had completed one year of high school, since then holding various jobs as a laborer, but had recently been laid off. Three weeks ago he had been released from jail after serving four months for having beaten up his ex-wife when she had come around "to pester me and my girlfriend."

During the interview the subject smiled frequently and gave a short nervous laugh. Anxiousness was evident in the occasional slight trembling of his hands, in his poor eye contact, and in a persistent tightness in his throat. He seemed impervious to his anxiousness and to the course of recent events. However, his frequent comments regarding the craziness or bizzareness of some of his behavior seemed to indicate concern over the normalcy of the way he had been acting. He was reluctant to cooperate, and several times he had to be urged to continue. He quickly tired of the testing, his interest being minimal to start. The patient required considerable support and at times when he became frustrated trying to express himself, would refuse to complete the test, saying "I feel like a fool doing this, I don't like it. That's all for me."

Hallucinations

The admission intake stated that the subject had reported having had both visual and auditory hallucinations. The visual hallucinations listed occurred just prior to the subject's jail term and involved his seeing snakes coming out of the wall at him. However, the subject denied that these were hallucinations. He said that "they were things that I dreamed about." He related having had recurrent dreams about snakes coming out of walls and crawling in bed with him for a long time. These were especially vivid and frightening, but "I was just thinking back on them, I knew I'd dreamed about them." He felt that his description of them had been misunderstood.

The subject's auditory hallucinations had occurred while he

was in jail. He said that he had heard the voice of a woman from way off saying, "come here" and calling his name. He said that he heard it several times, but he was not sure how many. It occurred while he was awake, while he was "doing nothing in particular." There were several other men in his cell. He said he kept wanting it to happen again, "so I could tell if I was thinking or what it was." He seemed concerned about this experience still, and was unsure of what had happened.

Imagery

Dreams. The subject estimated that he dreamed about three times a week. He usually has good recall of his dreams. Two peculiar characteristics of his dreams were noted. First, he felt his dreams were often prophetic. He cited examples of dreaming about finding money and the next day finding it, of dreaming that a friend wrecked his car the day before he did, and of realizing that sometimes when coming to a place he had never been before he had previously dreamed about it. He said he had had comparable intuitions while awake.

The second peculiarity was that he sometimes acted out his dreams while in a somnambulistic state. The patient cited examples. When he was about 15, "I moved all the furniture one night and thought I was working. I remember telling my brother-in-law to help me and he did, but he was awake." He said he occasionally makes love while asleep. "I'm a great lover when I'm asleep. Women say they like it better that way than when I'm awake. . .I dream about somebody else. Last time I was dreaming about a black woman. Wish I knew how to do that more."

Some of the subject's dreams are especially vivid and frightening to him. He said that he had often dreamed about snakes since he was young. In the dreams the snakes would be crawling in his bed and he would wake up frightened that they were really there. He also had occasional dreams about his own death, with death always seeming restful and inviting.

Daydreaming. About daydreaming he said, "I don't have many of them." He said that when he did infrequently daydream, they were limited to thinking about his girlfriend, "just thinking what we're gonna do, where we're gonna go." These daydreams seldom involve imagery, "most of the time it's just thinking."

Imagery tasks. Because of the patient's unwillingness to cooperate, several of the tasks were only partially completed. His imagery preference is strongly visual (Griffitt's Test--visual 72%). He was capable of vivid images in all modes (Bett's means were all less than 3.5). Vague images seemed due mostly to lack of familiarity with particular items. His visual imagery was especially vivid and detailed. For example, when asked to get an image of a penny, "first thing that popped into my mind was Abraham Lincoln, then I saw a date on it, 1957. It was reddish looking. I can see it just like I was sitting here holding it out in front of me."

The subject's control of his imagery was poorest in auditory and olfactory modes and best in visual modes. In the auditory mode, he experienced intrusive images, rather than the desired image. For example, he heard "horse's hoofs walking" rather than a siren, and he heard Jingle

Bells rather than White Christmas when asked to hear a recording of the latter. His images came to him very quickly, the detail of his imagery reflecting an embellishment of the image.

Several qualities of the subject's verbalizations on the Rorschach were notable. He reacted to the cards as if they were real pictures, that his task was to figure out what they really were. He expressed surprise at details that did not seem to fit. At one point he asked, "Do you know what they are? What are they really? They have a correct name or something, don't they?" As a result, almost all of his responses were "W" or "w." There was a lack of differentiation or ability to break up the percept. Finally, the subject's stance towards his imagery was one of reporting from the standpoint of a passive spectator. Imagery was something that happened to him or came to him rather than something he directed or used.

VI. SUBJECT 7

Subject # 7 is a 41 year old married white female who had been admitted to the inpatient unit a week prior to the testing in an acute state of confusion and physical exhaustion, having scalded both her hands in hot water. The acute episode of confusion and bizarre behavior had begun a week prior to admission, after both she and her husband had been saved at a prayer meeting. Since their conversion, they had been rejoicing, praying, doing little of the housework, not eating, and getting little sleep. In addition, the subject is menopausal and taking hormones.

Coincident with the conversion, her husband, who has muscular

dystrophy, had forgiven their estranged daughter and welcomed her home, an event the subject had hoped for and awaited for many years.

At the time of the testing, the subject's condition had cleared considerably; she described it as "the spell having lifted." She was somewhat reluctant to discuss the events leading up to her hospitalization the first day of the interview. However, by the second day she said she felt considerably stronger and was no longer reluctant to discuss what had happened.

A tall woman of average build and neat but plain appearance, her badly scalded hands remained bandaged. Although eager to cooperate, she maintained an apprehensive attitude throughout, except when speaking of her conversion and her religious interests. She made frequent self-deprecating remarks during the testing. At the time of the testing, she had begun to become concerned with why she had burned her hands and to have actively begun trying to recognize some of the feelings that had overwhelmed her.

Hallucinations

The subject's hallucination accompanied the burning of her hands. She described having become possessed and of having experienced a struggle within her between God and Satan. While in her kitchen, she heard a voice tell her that God was her right hand and that Satan was her left hand. Feeling under a spell, "like my hands were doing it all by themselves," she burnt them. She didn't know where the voice had come from and by the time of the testing she no longer believed she had actually heard it. This was the only hallucination she had experienced.

Imagery

Dreams. The subject reported that she seldom ever had any recollection of her dreams. "Some were good and some were bad, other than that, I couldn't tell you a dream I've ever had."

Daydreaming. The subject said that she had done quite a bit of daydreaming prior to her break. She said she used to spend time daydreaming about every day, that she would do it briefly, between chores, or sometimes just sit and stare our the window. She connected her daydreaming with having been depressed the last several years over her husband's increasing lack of activity and interest, and over their estranged family situation. "All hope of happiness seemed to have left me," she stated. All she had left, she said, were her dreams of the family getting together, of the family having good times, and memories of when it was like that. "It was so clear," she said. However, she noted, "I haven't been dreaming since I came into the hospital." "No," she corrected, "Not since before my husband and I got saved in the church. At that point, my dreams didn't matter."

Imagery tasks. Although the subject's description of her imagery tended to be meager, she tended to note the vividness and the clarity of her images. On the mode preference task, she used a variety of modes including auditory (32%), tactual (12%), kinesthetic (4%), and visual (52%). Her control of her imagery as reflected by the Gordon Test was quite good (her lowest score was 5/6). What difficulty she experienced in control was due to an inability to get an image rather than to a change in the image or the intrusion of other images. On

the Bett's Test she tended to either get an extremely clear image or no image at all (in all modes she frequently rated items as 1). It should be noted that on two occassions she seemed to react with surprise or was startled by her image. When asked to hear a siren, her image was very loud, louder than she would have liked it to be, and it noticeably frightened her. She related two incidents where she was stopped in her car by the police, which apparently had been somewhat traumatic for her. On a tactual item, when asked, "Can you imagine your hands submerged in warm water?", she reported that her hands started to burn causing her considerable pain. "It started hurting when you said that. Sounds kinda spooky to me," she stated. She was able to pretend changes in her mood and somatic state with relative ease.

The subject's performance on the Rorschach suggested that she was attempting to maintain strict control, to keep her emotional involvement toned down. She gave a low number of responses (10), rejected two cards, used little variety of determinants, gave five popular responses, elaborated little on her responses, used only prominant details, and expressed concern several times about the normalcy of her responses.

VII. SUBJECT 8

Subject # 8 is a 32 year old divorced white male who, although he has never had any psychiatric contact, had within the last year experienced a psychotic break lasting about four months. This period of bizarre, sometimes self-destructive behavior and of feelings of unreality, was preceded by a period of prolonged use of hallucenogenic

drugs and of marijuana.

The subject was self employed as a sculptor and portrait artist and the exceptional quality of his work allowed him to support himself on a small number of commissioned pieces. He was unclear about the events surrounding the onset of this psychotic period, but he described in considerable detail many events during that period. One of the most bothersome features involved his inability to put together his perceptions. Even small details could confuse him. He became hyperattentive to certain sounds; out of its normal context the sound became difficult to decipher, to anticipate when or where it would come from next, and he began to feel that the sound had control over him, that it influenced what he did. Others ability to deal with and react to events which left him so confused made him begin to feel that others were superhuman. He also began to feel that others could read his thoughts; this lack of privacy made him feel very angry and at the same time very vulnerable. This complicated his attempts to relate to others. He spent quite a bit of time alone during this period at home and in bed. Certain events made him feel as if he only needed to think about something and it was liable to happen. For instance, if he thought of a particular friend, that friend soon came to visit.

Also during this period, he would frequently get up and do things over which he felt he had no control. One incident involved ramming his head into a telephone pole. When he regained consciousness, his head and his whole body were sore and it was hard for him to move for several days. At another time he felt impelled to get up and drive off in a car (not his own). While he was driving on the expressway

"something" seized his arms and violently turned the wheel, sending the car off the road. Unhurt but very frightened, he left the car, found a telephone and called a friend.

The subject said that towards the end of this period he finally decided to stop being so passive about these occurrences and attempt to assert control over what was happening to him. He was unclear as to how he attempted to do this, but these experiences began to subside. For several months afterward, he said he remained fearful that these experiences might come on him again.

Hallucinations

The subject described having had visual hallucinations during this period in the absence of taking any drug. One such experience occurred to him while driving through town. He was driving at night and was aware of the other cars and the streetlights. He began to experience intermittent scenes of a mountain landscape, of a rocky stream, of a path, and very large hemlocks. Although this scene was in daylight, it alternated with the perception of the night street. He described it as, "Like you took two movies, mixed the individual frames up, and then ran them through in random succession." The mountain scene was equally as vivid as his perceptions, but it had little personal significance to him. It came upon him entirely unobtrusively. On another occasion he had just returned from the store and was fixing a meal in the kitchen. He said that he looked down at the table and saw a package of sausage. He turned away and when he turned back a second later, it was gone. He was certain he had seen it and yet it was gone.

The incident while driving the car when something seized his arms and turned the wheel qualifies as a kinesthetic hallucination. The subject gave a vivid demonstration to the interviewer of what the experience had been like for him. He told the interviewer to hold his arms up as if steering a car. Then from behind the interviewer, he suddenly and violently seized his arms and turned them. On the road it would certainly have been an unsettling experience. In addition, the subject described an olfactory hallucination which occurred when he hit his head. When he awoke and when he later "jiggled too much," he smelled an odor he could only describe as "the smell of death."

Imagery

Dreams. The subject said that he frequently recalled his dreams, that during the four month period he had not paid any particular attention to them. He has had several recurrent dreams, one involving falling off a bridge, knowing he was going to hit, but awakening each time before he hit. Another frequent dream he had was one in which he was parachuting, but in which he is always falling away from earth rather than towards it. None of his dream content that he recalled prefigured his hallucinatory or delusional themes.

During the bizarre four month period, a friend gave him some Thorazine . He said the effect was to dull his entire mind. For several days he did little dreaming or thinking and stated that "everything was like a grey fog."

Daydreaming. The subject reported that his daydream involved mostly "thinking about what I'd want to do." While not actually

rehearsing, he described it as "space that can be used over and over again." His daydreams consisted of "feeling a situation," the imagery that accompanied them was not detailed. Typically it was foggy or vague with attention more to his emotional reaction to the situation.

The subject said that since his psychotic experience he was aware that he did a great deal less planning than he formerly did. "It's like going to Oklahoma. You can get a map and spend a long time planning it or you can just get in the car and go. Planning doesn't get you there any sooner and involves more hassles."

Imagery tasks. The Bett's Scale indicated considerable variation in the vividness of various modes. The visual mode appeared the most vivid (1.6), the auditory (4.3), and alfactory (5) modes appeared least vivid. Visual mode was also the most predominant mode used on the Griffitt's Test (68%). The Gordon Test revealed good control in all modes except auditory (3/6). Closer inspection of the subject's complete responses to the open-ended tasks gave a different picture. His auditory difficulties stemmed from an inability to form a number of the requested images. While in the visual modes, he could form images, they would change on him. For example: Penny--"started laying down and then jumped upon its edge. It was sort of out of focus. One edge was fine, I could see Lincoln. No other details. Copper color. Only thing in the picture." With tactile and kinesthetic modes he mentioned that while the requested images were difficult for him to construct, other images in those modes could be especially vivid. As an example, he indicated that if he had been asked to imagine fleas bitting him, he

would have been scratching all over. He said that the place he has been living in is full of them and he has become very sensitive to them crawling on him.

The Rorschach evidenced a great deal more bizarre and impulsive content than the other imagery tasks. A great deal of explosive content and a noticeable lack of containment or ability to contain were evident. Also evident was a tendency to be overinclusive, to construct a whole by fitting discordant parts together. This led to a tendency towards contamination, taking a great deal of liberty with form to get it to fit with his emotional reaction and his associations, the investment of those emotional qualities into his percepts, and a large number of abstract responses (i.e., a detail representing "an argument," "the clincher" (a blast of energy) or the "experience of the taste of a soda").

VIII. SUBJECT 9

Subject # 9 is a 24 year old single white male who is presently in treatment at a Mental Health Center. He had had a breakdown four years ago, during which he experienced feelings of unreality (at times he felt invisible), hallucinations, and periods of panic and suspiciousness that he was being watched and followed. He is presently a student majoring in art, but had dropped out of school during the period of his difficulties. The breakdown was preceded by a series of losses and "depressions that began to get longer and longer," and by several months of heavy use of hallucinogens. He was vague in his recollection as to the frequency of his use, but said that he was taking them often enough so that it became difficult for him to "get off" without increasingly

larger doses. Also during this period he was heavily involved with black magic, as were his friends.

Although participation involved some inconvenience for the subject, he showed considerable willingness to participate. He could very able introspect and describe his experience and he seemed interested in and curious about his inner experience. Although he was quiet and reserved in his manner, he showed no reticence in talking about his breakdown. He looked back on his experiences from a position of having made considerable progress in dealing with his problems.

Hallucinations

The subject described two hallucinatory visual experiences. While walking out of a store, he described seeing a vortex, an area of emptiness, directly in front of him. He went back into the store and waited for his panic to subside. The experience left him mystified and frightened although he did not attribute any particular meaning to it.

Another time while getting out of a car with a friend, a blue light surrounded the car. Both he and his friend saw the light, he said. It seemed to settle around the car and they experienced a coldness in addition that lasted some time. Neither time had he taken drugs and both experiences were more vivid than anything he had experienced with drugs.

In addition to the hallucinations he had had some other experiences where he saw flashes of color and of frequent perceptual mistakes. For example, he said he would often mistake other people on the

street for someone he knew, someone he said he was wanting to see. He would momentarily see their face in other people's faces.

Initially he sought and tried to induce aberant experiences through his use of drugs, but his increasing loss of control began to frighten him and caused him to stop the use of drugs.

Imagery

Dreams. The subject reported that he dreamed frequently, that he was aware of having about two dreams per night. He said that rather than remembering specific details about them they more often leave his mood affected, producing panic or anxiousness or sometimes satisfaction that causes him to wish he could return to the dream. The usefulness of his dreams in his therapy has led him to attend more to and attribute more significance to his dreams. He cited this as a reason why his dreams now seemed longer and more detailed.

Daydreaming. The subject reported that he daydreamed quite a bit, that he always had done so, attributing this to the fact that when he was young, he spent quite a bit of time alone. His daydreams consisted primarily in rehearsal as to how he would handle a siuation he was confronted with. Sometimes, he said, "They serve the purpose of doing something I really can't do." He becomes very involved in his daydreams and said that for example, when he was driving, he sometimes found it hard to keep his attention on the driving. At times, he said, the daydreams seemed to take over, and he would lose control in the sense that he would become immersed in them. At other times he watches himself in his daydreams, from a point outside himself.

Imagery tasks and tests. The most striking quality of the subject's imagery was his seeming involvement in it. His imagery was vivid in every mode (All Bett's Test means were less than 5.0), his descriptions extremely detailed. Each image was typically experienced in a variety of modes. Some examples will illustrate this quality:

Penny--"It's very close. It's shiny, new copper, I can see the relief on it really well, date 1970 ? something, guess that goes with the newness. I knew the lettering and numbering were there--kinda took that for granted. It was slightly turned so that I could see one edge."

When asked to imagine feeling himself pick up a book, he responded: "First image I felt the weight of the book, pressure underneath on my hand. Had to adjust the weight to keep it from slipping. Some texture, the hardness of cover, edges of the pages were rough."

The modes he most frequently used were visual (52%), and auditory (32%). The vividness of an image seemed related to the amount of detail he attended to. For example when trying to retain an image of a grapefruit, which kept fading, he "started picking up things about its texture to make it stay."

The degree of control indicated on the Gordon Test was high (5/6 being his lowest score), although his descriptions indicated that he did have trouble controlling certain aspects of his images. For example, his image of the penny was very close up in front of his face, closer than he would have liked it. In hammering a nail, it went right through the plaster instead of hitting a stud, as he would have liked it. The

smell of the orange was strong and sharp to the point where "it almost burnt." The siren was screeching and unpleasant. On trying to hear a recording, the voice was "too nasal."

Another quality of the subject's imagery was that he tended to locate the image at the sense organ rather than in his mind. This seemed related to his involvement in his image. For example, in tasting salt, he imagined "feeling it on my tongue; it got stronger as it melted, could feel my face distorting."

While sensory involvement was strong, the subject seemed to have some difficulty with tactile images. They were very specific in their location, like a pin prick. Less specific images, especially moods, were more vividly and easily imagined. At times he saw himself in his images, so that he was watching himself. A related feature of his Rorschach was the use several times of vista as a determinant.

Also in his Rorschach responses was a tendency to make use of the whole blot even when he found it difficult to incorporate certain details into his percept. When he did so, the incorporated detail, if not appropriate, was left vague and undefined.

IX. SUBJECT 10

Subject # 10 is a 27 year old divorced white female who was in treatment at a Mental Health Center. She had been hospitalized on several occasions in the past six years, each time for depression, anxiety, and suicidal thoughts, each stay being of short duration. Her divorce, interpersonal relationships with men, and traumatic memories of a rape incident weighed heavily in her problems. Previous diagnoses

had been of hysterical neurosis, anxiety neurosis and inadequate personality. Since her divorce five years ago, she has worked at various jobs, including a position as a psychiatric aide. She has attended college and is currently enrolled, taking art courses.

The subject related in a subdued manner in the interviews, speaking quietly from behind dark glasses she sometimes wore, with little affect. However, she seemed eager to relate her difficulties, describing them with considerable insight and with an extensive psychiatric vocubulary. She was seen for only two interviews. After missing her next appointment and attempts were made to contact her, she left a message that she would no longer take part in the research. The reason for her termination of participation was unclear. The interviews included discussion of her hallucinations, of her dreams and daydreams, and the open-ended imagery tasks. Neither the imagery tests nor the Rorschach were completed. The subject denied use of drugs, having only several times tried marijuana.

Hallucinations

The subject described both auditory and visual experiences which she labeled as hallucinations and which occurred during periods of notable stress. In the visual experiences, she distinguished between good and bad visions. The good visions she saw as mystical and revelatory. She described two incidents. On both occasions, she said she was aware of a heightened sensory sensitivity. The first occurred on the street. In it people seemed to appear two dimensional to her, against a flat background. She stated "It was like I could see through

them into another whole world behind them. I felt a communion with nature." She was aware at the time that the scene just appeared that way to her and that she wasn't actually seeing through them. The second hallucination involved a similar transcendental theme and consisted in seeing peoples faces at the tips of tree twigs as she looked out the window one morning. Both hallucinations she wished she could recapture, regarding them as desirable experiences.

The "bad" experiences she described both occurred while she was lying awake in bed. She seemed quite certain that she was awake and not hypnologically drifting off to sleep. Illumination was reduced in the room. In the first instance, she saw two popes kissing above her. In the second, she saw a woman sitting at the end of her bed, in an orange shift. Both lasted about five seconds, each frightened her, but each she was able to label as a hallucination. She did not believe that the visions were real, nor were there any delusions associated with them.

She described three auditory experiences which she labeled as hallucinations. Once, alone in her house, she heard footsteps and heavy breathing, another time she believed she heard children's voices calling her name from the fire in the fireplace. The third occurred the night she was last hospitalized, when walking past a group of people, she said, "There was like a ring of soft laughter around me." The first instance frightened her, but in the other two she was aware that although they were especially vivid, they were something she was imagining.

Both the subject's visual and auditory experiences might better

be described as pseudohallucinations in that although the experience is as vivid as actual perceptions, she retained an awareness that her image differs from a perception. They differ from illusions in their degree of vividness.

Imagery

Dreams. The subject said that typically she has good recall of her dreams and that there are periods where she is aware of dreaming more heavily and she does not remember. In light of about 10 years of experience with various therapies, it seems reasonable to assume she has learned quite well to attend to her dreams. She said that it had seemed to her that a period of heavy dreaming preceded and overlapped some with her hallucinatory experiences. Although they were parallel in theme, specific content in her dreams was not common to her pseudohallucinations.

Daydreams. While the subject does daydream, she said that she does not do so with any unusual frequency. Usually they are about some course of action she might take, although they tend to be more wishful than something she intends to act upon. She described a second type of daydreaming in which ideas for her paintings occurred to her. The images involve perceptual distortions or abstractions of perception which seemed similar in content to the visions she reported. Although she was not questioned in depth about this before she terminated, she did describe differentiating the two in that the visions were something she actually saw with her eyes, while the others she saw with her mind,

and although they were intuitive, involved a degree of playful intent. The distinction is interesting to note.

Imagery tasks. The responses on the imagery tasks suggest that her imagery is most prominently visual, in that regardless of mode, visual images accompanied the other image. The detail and elaborateness of her descriptions suggest that there is considerable clarity and vividness to her imagery. The only two modes in which she had difficulty getting an image were tactual and olfactory. Her control of her imagery was of a nature that while she could usually get the desired image, it was heavily embedded in a variety of other related images. For example, on the "Penny" item, her response was, "It's very bright and shiny, sunshine reflecting off several pennies in a chain, it's falling into a pool of clear, blue water and a blond woman is reaching down for it." It was noted also that when attending only to her visual images, her descriptions were lengthier, the succession of images more spontaneous. However, when she had to construct or attend to an image in another mode, the succession of visual imagery was less run on. A time or two she had difficulty directing her image as she wanted. When asked to get an image of what it feels like to hit a nail with a hammer, she was unable to hit the nail, each time hitting the wall.

CHAPTER VI

METHOD

I. THE DESCRIPTION AND MEASUREMENT OF IMAGERY

While there has been a resurgence of interest in imagery since 1960, most of the methods used to measure and describe imagery date back to earlier investigations. An adequate description of imagery must reflect the variety of describable aspects of imaging. The dimensions of imagery which have been identified in previous studies are modality, vividness, and control.

Modality

Galton (1883) discovered quite unexpectedly the vast individual differences in modalities employed when he began to question his scientist friends about their visual images. Many of the scientists did not know what he was talking about, reported never having experienced visual images, and found it difficult to believe that others experienced them. In contrast, a group of non-scientists he sampled made frequent and consistent use of visual images. In more extensive surveys, he determined that an individual utilizes primarily one mode and that individuals differ in terms of mode preferred.

Vividness

Galton (1883) also found that the intensity of the imagery his subjects reported varied from a total inability to visualize to eidetic images to photographic quality. James (1918) reported that

most imagery is of less than exact clarity, with some features of details more prominent than others.

Control

An important aspect of the imaging experience is the degree to which the imager is aware of acting and determining the flow of imagery. The variable has been identified in the literature, but has been meagerly investigated. Gordon (1949), in the original study, developed a test for control of imagery which derived from her observation that "while some people affirm that they always have volitional control over their imagery--that is to say their images can be called up, dismissed, and while present can be manipulated by the subjects without difficulty, others admit that their images do at times behave irrespective of their wishes" (1949, p. 157).

Rapkin (1973) has delineated a number of aspects related to control, such as awareness of actively initiating imagery, the ability to reverse an image by imaging an opposite course of events, the ability to change or transform imagery in an intended direction, to produce fantastic or unrealistic changes, the ability to stop an image, and the ability to lose awareness of pretense (that is, to forget that you are pretending).

Measurement of these variables has rested on self-report data and involved primarily the use of scales. For example, the measurement of vividness has been accomplished most frequently by the use of the Betts Vividness of Imagery Scale (Betts, 1919). Sheehan (1967) has developed a shortened version of this scale, where an image is suggested

to the subject and he is asked to rate its vividness on a 7-point scale, where each point is defined for the subject by a descriptive statement. This scale is more extensive and adequate than the simple scale of Spanos and Barber (1968), used by Alpert and Mintz (1972). Modality has been determined primarily by Griffitts' (1927) test described earlier. Gordon's (1947) test of control is the only such test utilized so far and focuses exclusively on the visual mode, but Richardson (1972) has provided suggestions for its adaptation to other modes. All three scales will be used in the present study.

The exclusive use of scales, however, is not entirely adequate. The tests involve a limited set of imagery tasks and constrict to a considerable degree the subject's range of responding. An additional, more open-ended approach is desirable. Galton (1883) used such an approach in his extensive investigations and extolled the virtues of the open-ended interview, for it allows for unanticipated differences to emerge. An additional difficulty inherent in the use of scales is that one must use considerable caution in interpreting the results. Significant differences can involve such a limited range of the scale as to be meaningless. A structured interview patterned after Galton's method was developed for this study which allows open-ended response to imagery tasks, sampling imagery in each mode and incorporating several tasks of control adapted from Rapkin (1973). The tests and the structured interview appear in the Appendix.

II. SUBJECTS

The nine subjects utilized in this study included four subjects hospitalized in Eastern State Psychiatric Hospital, Knoxville, Tennessee,

two subjects hospitalized on the in-patient unit of the Oak Ridge Mental Health Center, one patient involved in a day care program, and another in out-patient therapy at the Helen Ross McNabb Mental Health Center, Knoxville, Tennessee. Subjects were selected in the following manner. Initially the facility staff and ward personnel were approached and asked to suggest potential subjects who were known to have experienced hallucinations, either in the past or at present, who did not carry an organic diagnosis, and who seemed to them coherent enough to talk about their experiences. Each potential subject suggested was interviewed to verify the hallucinatory experiences, to further rule out an organic diagnosis, to determine that the hallucinations did not occur while on hallucinogenic drugs, to determine if the subject was capable of introspecting and describing his experience, and to determine if the subject was willing to participate in the study. If the subject qualified on these points he was asked to participate.

These qualifications served to severely restrict the number of subjects used in the study. The subjects included represent less than a quarter of those who were identified by the facility staff as hallucinators and were initially interviewed. All of the above criteria were responsible for rejection of at least several subjects but the greatest number were ruled out either because their hallucinatory experiences were questionable or because of a lack of willingness to cooperate. With respect to the first, some subjects denied hallucinatory experiences which they had previously described to the staff and to avoid error, these subjects were not included. More frequently,

however, the subjects were thought by the staff to have hallucinations because of distracted behavior or because they talked to themselves. On questioning, many subjects had a plausible explanation for their behavior (for instance, "I was just talking to myself"). These subjects also were not included. The latter criteria, willingness to cooperate, was especially difficult to procure for several reasons. Participation was entirely voluntary and required a considerable investment of time on the subject's part. Also required of the subject was signature of an Informed Consent Form. Many subjects were reluctant to sign the form even though they agreed verbally to the procedure and to participation. The subjects who were included in the study represent the most cooperative, though not necessarily the most compliant, of the initial group interviewed.

III. PROCEDURE

The investigative procedure for each subject consisted first of an initial interview in which the subject was screened and in which the purposes of the investigation and the nature of the procedure were explained to him and his cooperation sought. If the subject agreed he was asked to sign an Informed Consent Form (see Appendix).

This was followed by the experimental procedure proper, a series of structured interviews in which each subject was questioned about his everyday use of imagery--his dreams and his daydreams, and was given a variety of imagery tasks patterned after the imagery interview of Galton (1883) which tested his ability to image in a variety of senses and his ability to direct and control the flow of his imagery.

In addition, they were administered a series of standardized imagery tests. These were read to the subject and included a shortened form of the Betts Vividness of Imagery Scale (Sheehan, 1967), a shortened form of the Griffitts' Imagery Modality Test (Snyder and Cohen, 1942), an adapted form of the Gordon Test of Imagery Control (1938) as suggested by Richardson (1972), and the Rorschach Inkblot Test. The Singer Imaginal Process Questionnaire (Singer and Antrabaus, 1963) was initially included but was discontinued when it was determined that it was too difficult a task for the population sampled.

Each interview lasted for between one and two hours. However, the number and duration of the interviews varied with the cooperation and interest of the subject, and therefore subjects were interviewed from as little as 6 total hours to as much as 15 hours, spread out over 7-8 interviews.

Because of difficulties in maintaining rapport and cooperation with several of the subjects, not all of the procedures were completed for every subject. Also the exact interview structure was not strictly adhered to, but in all cases it was roughly followed.

IV. DESCRIPTION OF MEASURES

Betts Vividness of Imagery Scale

Sheehan's (1968) shortened form of the Betts Vividness of Imagery Scale consists of five in each of seven sensory modes--visual, auditory, tactile, kinesthetic, taste, smell, and somatic. On each item the subject is asked to get the required image and then to note its relative vividness on a scale of 7 where a rating of 1

designates an image which is "perfectly clear and as vivid as the actual experience" and a rating of 7 designates that there is "no image present at all, you are only knowing that you are thinking of an object." Ratings in between 1 and 7 designate a scale of intermediate degrees of vividness and are accompanied by a descriptive statement such as "moderately clear and vivid" (3), or "not clear or vivid but recognizable" (4). The ratings in each mode are averaged, producing a mean degree of vividness for each sensory mode.

Griffitts Imagery Modality Test

The original Griffitts Test included 135 items but the form used in this study is a shorter version developed by Snyder and Cohen (1940), which consists of 25 items. The subject is asked to imagine each item and report the sensory mode in which he experienced the image. The number of items in each mode are totaled and the subject's scores are listed as a percentage.

Gordon Test of Imagery Control

Gordon's (1949) original test was adapted for this study along lines suggested by Richardson (1972) to include five additional modes--auditory, tactile, taste, smell, and kinesthetic. There are two sets of tasks for each mode. In each task the subject is asked to get a particular image. He responds by answering yes or no as to whether he is able to get the image. Then he is requested to produce two changes in the image. He responds after each request by saying yes or nor as to whether he was able to imagine the required change. The subject, therefore, makes six responses in each mode; his score is

listed as the ratio of the number of yes responses to the total number of responses in each mode.

CHAPTER VII

DISCUSSION

I. SUBJECTS: A NOTE ON THE SAMPLE

The number of subjects and their representativeness, both due to difficulties in accessibility and in securing cooperation from potential subjects, are less than what was desired and, it could be criticized, possibly less than adequate for generalization to the larger group--"hallucinators." Admittedly the representativeness of the group is tenuous; it is seen as adequate for the purposes of this study for two reasons. First the exploratory hypothesis generating intent of this study does not require the same degree of statistical exactitude and significance that a study with more definitive ambitions demands. Secondly much of the import to be made of the results derives from individual differences among the subjects rather than characteristics common to them all. One of the benefits resulting thereby is the avoidance of overlooking the potential complexity of the phenomena, for the data suggest that the involvement of imagery in the hallucinatory process might indeed be complex. It should be kept in mind that these observations, although extensive, are preliminary and should serve primarily to guide and direct further observations.

One obvious bias in the sample is worthy of note. Hallucinations are known to extend on a continuum of personal to impersonal and from benevolent to threatening. These hallucinators who were asked to participate but who refused had had predominantly hostile and threatening hallucinations and their hallucinations were typically auditory

and located at some distance from them. Those hallucinators who did agree to participation had predominantly either impersonal, visual or benevolent auditory hallucinations, closer in location and in several cases involving imaginary companions.

Participation required a good deal of time and involvement on the part of the subject. Although hallucinators hearing threatening or hostile voices were difficult to enlist, those with benevolent companions were much more obliging. They seemed to react to the experimenter and his requests in much the same manner as they related to the hallucinated object, suggesting some consistency in their interpersonal style. This is consistent with speculation made by Havens with regard to the location and type of hallucination. He noted that:

> Clinical material concerning extremely distant objects (hallucinated) is of course most difficult to obtain. The patients can be observed, sometimes their conversations with distant objects can be overheard, but introspective accounts are usually skimpy and unavailable. The patient fights us off as they do the imaginary objects; not only are they alienated from the fantasy objects of their environment but from the real people as well. In subsequent material we will have several occasions to note how similar are the patient's relationships with "real" and his "unreal" objects (1964, p. 427).

II. HETEROGENEITY IN THE SAMPLE

Close examination of the hallucinatory experiences of each subject indicated considerable differences in the types of experiences which were described. Subjects #1, 4, and 5 were chronic schizophrenics whose hallucinations differed from those of subjects #3, 6, and 10 who had been diagnosed at one time or another as hysterical characters.

In addition the hallucinations of subjects #8 and 9, whose psychotic episodes had been precipitated by drug use, were very similar to drug-induced hallucinations. Finally, subject #7 had had an isolated hallucination in the midst of an acute break from which she quickly recovered.

The hallucinations of the chronic subjects, the most severely disturbed of the subjects, seemed to involve confusion of states of consciousness and of ownership of their thoughts. Subject #1 identified her hallucinations as daydreams, which had caught hold of her and in which she had been totally immersed, attributing the status of reality to them. She lost the distinction between the normal waking state and the daydreaming state of reduced attention to the events around her and increased involvement in her imagings. Subject #4's present hallucinations differed quite a bit from his earlier hallucinations, and technically might not even be called hallucinations. The early hallucination which occurred during the more acute phase of his illness consisted of isolated visual phenomena at a time during which his imagery was more potent and vivid. The present experiences, involving his wife speaking to him, were not located externally but rather in his mind. His wife's messages seemed coincident with his own verbalizations to himself; however, he attributed the intent of his thoughts to his wife, not to himself. Subject #5 similarly mis-attributed her images as occurring under someone else's intent and control. A visual image could become for her a picture someone was showing to her. The distinction as to whether such events are hallucinations is ambiguous but her difficulties are ones of confusion of states--

waking and daydreaming and making mistaken attributions regarding her images and mislabeling them.

The hysterical subjects' hallucinations more closely resemble perceptual errors or illusions, external stimuli are more noticeably involved and did not involve the more severe mistaken discrimination of states of consciousness. Their hallucinations seemed to occur during periods of stress and involved distortion of a perception. They more closely resemble Perky effect type phenomena or illusion. Subject #3's hallucinations clearly involved external stimuli--the chirping of birds, the moon, or a lampbase. So, too, with subject #6, whose auditory hallucination occurred amidst background noise in a jail cell; subject #10's from the crackle of fire, sounds of a quiet house, and the distortion of visual phenomena or under reduced illumination.

The subjects who had had extensive experience with hallucinogens experienced hallucinations that were like drug induced hallucinations in that they were intensely visual and impersonal, non-recurrent, and fleeting. Whether they occurred as the result of flashbacks produced by the drugs or as part of the psychotic process is unclear.

Dreaming. Little distinction appeared about the dreaming of these hallucinatory subjects. Only two subjects (Subject #1 and Subject #5) reported any identity between hallucinatory material and their dreams. Such an identity of content probably is limited to persons whose hallucinations are imbedded in a fantasied delusional realm where this realm, as Ekstein (1971) has noted, becomes a

permanent substitute for a toxic reality. Both of these subjects labeled their hallucinations as daydreams and experienced them passively and as spontaneous and uncontrolled. Winnicott (1971) has made a distinction between fantasy and dreaming:

> The dream fits into the object relating in the real world, and living in the real world fits into the dream world in ways that are quite familiar, especially to psychoanalysts. By contrast, however, fantasying remains an isolated phenomena, absorbing energy but not contributing in either to dreaming or to living. To some extent fantasying has remained static over the whole of this patients' life (1971, p. 48).

It is indeed a significant step for the person when these two realms merge.

Recall of dreams did not appear to be a factor in itself but rather a part of the subjects' overall cognitive style. To illustrate, two of the hysterical subjects (#3 and #6) showed quite different recall. Subject #3 was aware that she dreamed but could not recall any but meager memories. But she also did little daydreaming and paid almost no attention to her inner life. She was bound very much to external stimulation. It can be seen that she might, under a great deal of stress, experience a vivid image as located externally, in the realm where she was most familiar. Subject #6, on the other hand, had good recall of his dreams, found them prophetic, and sometimes became involved in them to an extreme, as to actually act them out. What was similar between the two was the naive, passive, uninitiated way in which they experienced their imagery.

Daydreaming. More prominent among the results were the findings relating to daydreaming. It seemed to be an activity foreign to the

psychotic subject. Singer (1966) has suggested that "Delusional thought is probably closer to daydreaming than is hallucination. The latter experience seems more characteristic of persons with little evidence of imagination, while delusions occur more in persons with a greater history of imaginative capacity" (p. 196). The psychotic subjects in this study reported a consistent lack of daydreaming during psychotic periods. Subjects #1 and #5 both denied daydreaming, but in a curious turn of logic identified their delusional and hallucinatory experiences as daydreams. Subjects #4, 7, and 8 all denied daydreaming but dated this specifically to the psychotic period. They described having been frequent daydreamers prior to their breaks. What these subjects seemed to be denying was an active role in the production of their thoughts and images. Daydreaming is typically a self-initiated activity and the subjects seemed to recognize it as such. While Singer (1966) suggested that hallucinators are people who do not engage in much daydreaming, this may be more an attribute of the psychotic state than an enduring characteristic of the individual.

Among the other four subjects we see considerable variation in daydreaming, subject #3 doing no daydreaming, subject #9 being a frequent daydreamer. However, what they share is that each described a sense of lack of control or initiation in their experience of their daydreams. While not pervasive, this also tends to be characteristic of their imagery.

More speculatively, one might relate two other observations to this lack of an active role with respect to their fantasy of the psychotic subjects (#1, 4, 5, 7)--the literalness of the psychotic

subjects when asked to pretend certain feeling or mood states and their reluctance in some instances for vivid, involving imagery. Their reluctance to take on moods or to get extremely vivid images is exemplified by comments such as: subject #1--"It's only half an orange, if I see it all it will be more a delusion, more real," subject #5's fear that a vivid and sudden image of a grapefruit would become real, subject #4's statement that he does not see his wife because "she wants him to be more in reality than that," coupled with his evident desire to avoid strong feelings and vivid imagery, a fear shared by subject #7 who was struggling to solidify her recently regained control. It seems that more than non-compliance, the subjects' reactions rather reflect defensiveness or fear that the images and feelings might take hold of them and from which they could not separate themselves. This feature seems akin to an inability to play or pretend. The serious import of this inability perhaps can be made clearer by reference to Cain's (1961) description of the play of borderline children:

> . . . child's play is so often used for belated mastery of traumatic events or anxietous internal states. The terrifying psychotic states, and the chaotic fall into them, must be repeated again and again in a context of ego control, the experience gradually cut down to size and assimilated. Ego control is asserted instead of being utterly overwhelmed. The experience is invoked and played out actively instead of endured passively, and the child ends it as he wants, rather than drowned in a sea of confusion and horror and object loss. . . . This time, the states or rather lesser versions of them--are deliberately evoked, do not flood the ego but instead are mastered by it (cited by Wax, 1961, p. 299).

Wax (1961) has pointed out the importance of the ability to play for the maintenance of reality testing. He described one psychotic child's inability and fear to pretend in an article entitled "Learning

how to pretend; a distinction between intent and pretense observed in the treatment of a borderline psychotic boy." The difficulties he described closely parallel the difficulty in imaging of the psychotic subjects in the study. The child's initial use of pretense was limited to a denial of his actions. He could pretend to play with an object but he could not play with a pretend object. Wax noted:

> This function, i.e., the capacity to distinguish between pretense and reality, also distinguishes an adaptive from a maladaptive use of pretence. The child, Eddie, gradually gives up the use of the word pretend as a magical way of undoing the implications of his acts. Once he makes this distinction, either through his experience in development or his experience in treatment, then pretending in his play can take on the usual function, i.e., as an important means by which sources of anxiety may be dealt with. Similarly, if the child is able to pretend, then he of necessity is able to differentiate between inner and outer concerns, i.e., inner and outer reality. Further, in making this distinction, he has achieved a beginning differentiation of object and self, for the capacity to pretend is predicated upon just that. Psychological separation has occurred as a precursor to this development, since pretence is only possible when there is a separation, not only a separation from the object, but also separation of fantasy from reality (1961, p. 302).

Vividness. It had been hypothesized on the basis of the Alpert and Mintz (1972) study that hallucinators would evidence a capacity for vivid imagery. The results of these observations did not contradict this expectation. While some subjects showed a greater degree of vividness, all could get images which they rated at least as moderately clear and vivid. No exceptions were noted. Because of a lack of norminative data it is difficult to compare the scores of this group with the general population, but it seems reasonably safe to say that being able to get a moderately vivid image is a prerequisite for hallucinating.

Modality. From the precedent established by Seitz and Molhalm (1947) and Thale et al. (1947), it was hypothesized that a hallucinator would tend not to prefer to use the mode in which he hallucinated. Data from this study do not support this hypothesis. If a trend is apparent in the data it is that the subjects seem to prefer the hallucinatory mode. However, it must be kept in mind that Seitz and Molhalm (1947) limited their study to auditory hallucinations. In this study auditory hallucinations were in the minority. Several possible explanations for the discrepancy can be offered. First, this relationship may hold only for the auditory mode, a caution Seitz and Molhalm made in their discussion. Additionally, their subject population might well have differed considerably. Psychiatric admission censuses have undergone considerable changes in the 28 years since the Seitz and Molhalm study. The third possibility is that the relationship in fact does not hold, that Seitz and Molhalm (1947) were mistaken. These data do suggest that the Seitz and Molhalm study requires more replication attempts.

Control. One characteristic common to all subjects was an inability in some manner to control their imagery. This was not as apparent in their scores on the modified Gordon Test as in their open-ended responses. The Gordon Test appeared much too insensitive to describe the degree of control shown. The open-ended data suggested useful lines along which the test might be reconstructed. A number of types of lack of control were noted. One type involved the inability to form an image as desired. For example, subject #8 was not able to get certain details of an image he would have liked, while

subject #9's images frequently had a degree of certain qualities he did not desire. His images had "too much of this" or "too little of that" quality. Another type of lack of control involves intrusive images. Among the subjects in this study this ranged from an inability to hold the desired image because of its displacement by other images to an inability to get the required image at all, and instead experiencing an intrusive image, which might be a single image or a cascading flow of different images. A final type of inability to control noted was the inability to tone down the vividness of the image, evident in the more severely disturbed patients, such as subject #1 and subject #5.

Lack of control was particularly prominent in the hallucinatory mode. The only exceptions to this were subjects #8 and 9, the two subjects with a history of heavy use of hallucinogens. Table 1 illustrates this relationship (see Appendix A).

Also noted were conditions under which subjects' control of their imagery increased. Control was worst when the response was limited to one mode. Subject #10, for example, experienced a spontaneous flow of visual images which were much more attenuated when accompanied by attempts for images in other modes. Subject #1 experienced exclusively uncontrolled spontaneous visual images and could not get images in other modes. Hallucinations tend to occur in one mode and may involve exclusive attention to that mode at the time.

III. ADDITIONAL ASPECTS OF IMAGERY NOTED

During the course of the study several aspects of imagery which were not considered prior to the study were noted. An aspect which

was not looked at specifically but which was noted in several subjects was the degree of their involvement in their imaging. Subject #9 especially illustrated this quality. His involvement was evident in the vividness of his imagery, his use of multiple modes for each image, the detail of each image, and his tendency to locate the image at the sensory site. The vividness and attention to detail suggest considerable restriction of attention to the image. Involvement in imagery has been mentioned as an important aspect of imagery use by Sarbin (1967). Noting, as Piaget (1951) had, that imagery seems to stem from muted imitation and role taking, he described images as varying in the degree to which the person actually acted out the image. For example, auditory images derive from a muted imitation of the sound and varies in the degree to which one is aware of making the sound or constructing it. It was noted that subjects variously were aware of producing the sound themselves or else "listened to hear" a sound. The produced sound had recognizable qualities of one's voice, the "listened to" sound was more like an exact memory.

The tendency to locate the image of the sensory site was also occasionally noted in other subjects and intuitively might be related to hallucinating. Semantically it is a difference between seeing an image with one's eyes and with one's mind, of feeling an image in your mind or in your hands. Strauss (1961) has pointed out that the percept is something that affects you from without. Where an image is located is an important correlate of how the subject experiences the image (actively initiating it or passively experiencing it) and other attributes he makes about it, such as whether there is an external

cause of the experience. Both these factors, involvement with imagery and the location of the image, deserve further elaboration and study with normals as well as in hallucinating subjects.

A final factor was noted in the Rorschach responses of several subjects. Their protocols suggested a tendency for overinclusiveness in their responses that was indicated by attempts to include all portions of the blot into a whole percept. Their comments suggested they saw their task as figuring out what the percept actually was. They made frequent comments about parts that did not fit or they took liberty with the form of certain parts in order to include them. Only five subjects received the Rorschach, so the number of observations are limited.

As a perceptual style, this seems similar to the "completion effects" described by Caston (1969) and to a cognitive trait described by Witkin as field-dependence, which involves an inability to break up and isolate aspects of a percept, with a greater influence of context. There is some other evidence to suggest the latter as a possible perceptual style of hallucinators. Reed (1972) cites unpublished data generated by Witkin that subjects in sensory deprivation experiments who are most likely to report auditory and visual "hallucinations" are field-dependent. Richardson (1969) cites unpublished data of Segal that in his Perky effect studies subjects who tended to misidentify the stimulus as part of their own imagery were more likely to be field-dependent.

IV. FURTHER SUGGESTIONS FOR FUTURE RESEARCH

This study has hopefully shed some light on the question of why some individuals develop the peculiar symptom of hallucinations, both in terms of useful methods of study and in suggesting particular factors involved in the hallucinatory process. Hallucinations are seen to occur in a variety of types and in connection with varying degrees of reality testing. The correspondence of certain types of hallucination with varying pervasiveness of reality testing difficulties suggests that type of hallucination and degree of reality testing are useful criteria for grouping hallucinatory subjects in future research. In this study, four groups were observed. One group of subjects had hysterical character styles but with no pervasive reality testing deficit, another group was chronic schizophrenics, a third group contained an acute schizophrenic, along with two subjects who have had an extensive history of use of hallucinogenic drugs. Doubtlessly more bases for differentiation are appropriate and more attempts should be made to reduce heterogeneity among a sample of hallucinators.

Further, hallucinators should be separated as to mode. The discrepancies between the present study and the Seitz and Molhalm (1947) study might possibly be due to a difference in sampling with respect to hallucinatory mode. Because the process may be quite different for different modes, this distinction should be kept in mind.

Because of the limitations and bias of the sample which have already been pointed out, larger and more representative samples need to be used to support the findings of this study. Attempts should be

made to include more observations on auditory hallucinators and upon acute schizophrenics, observations which are deficient in this study.

More attention needs to be given to intra-individual differences in imagery functioning. The data suggest that cognitive functioning and imagery use do change with respect to situational factors and with respect to particular states of consciousness. Subject #4 described considerable change in his imaging ability and use at different stages in the progression of the psychotic process. Pre-morbid, acute, and more chronic stages may show characteristically different patterns and necessitate longitudinal studies of individuals in order to be determined.

A situational factor which may produce intra-individual variation is stress. This is especially relevant to the hysterical subjects. Little is known about how an individual's imagery and other cognitive processes change in relation to stress, but it is quite possible that vividness, control, and mode used might all be affected. Freud made the following observations of his own imagery under stress which seem to support this notion:

> I remember that I have twice felt myself in danger of my life and each time the perception came quite suddenly. In both cases I thought to myself "Now it's all up with you" and, although my internal speech is as a rule carried on with quite indistinct sound images and only faint sensations on the lips, yet in the moment of danger I heard these words as though someone were shouting them in my ear and saw them at the same time as though they were printed on a fluttering piece of paper (As quoted by Isakower, 1939, p. 347).

This last point illustrates one source impeding any attempt to study the hallucinator's use of imagery and that is the general deficit in our knowledge of and methods used to study imagery.

Because the tests of imagery have been used primarily to discriminate high and low degrees of a trait, little normalitive data exists apart from Galton's 1883 observations. Description of a pathological pattern of ability and use can have little meaning until we know more of what is "normal."

V. SUMMARY

It was initially the ambition of this study to begin to describe a pattern of imagery use and ability which was characteristic of hallucinators. The data suggest however that there is probably no single pattern of imaging behavior in hallucinators. Nevertheless the imagery style of the hallucinator does appear intimately involved in the type of hallucination that is developed. Hallucinations represent a very ideosyncratic group of behaviors--a particular type of adaptive response to a particular situation. The hallucinators in this study seemed to share several qualities--the capacity for vivid imagery, some form of inability to control their imagery, and more speculatively an overinclusive perceptual style. Factors seen in some hallucinators but not in others were a high degree of involvement in their imagery, a tendency to locate the image at the receptor site, little attentiveness to internal life, and pervasive deficits in reality testing. It is primarily the latter which determines the degree of pathology of the hallucinations. This aspect of the psychotic process contributes heavily to the nature of the hallucination. Suggestions were made for future research which included refinements in methods of study along with specification of a number of factors of imagery use which seemed involved in the development of hallucinations.

LIST OF REFERENCES

REFERENCES

Barber, T. X. and Calverley, D. S. An experimental study of "hypnotic" hallucinations. Journal of Abnormal and Social Psychology, 1964, 68, 13-20.

Barber, T. X. Hypnosis, suggestions, and auditory-visual hallucinations in Origins and Mechanisms of Hallucinations, W. Keup (Ed.), New York: Plenum Press, 1970.

Betts, G. H. The Distribution and Function of Mental Imagery. New York: Columbia University, 1909.

Binet, A. L'hallucinations. Review of Philosophy, 1884, 17, 377-412.

Caston, J. Completion effects and attention in hallucinatory and non-hallucinatory patients and normal subjects. Journal of Nervous and Mental Disease, 1969, 144, 146-157.

Cohen, L. Imagery and its relation to schyaphrenic symptoms. Journal of Mental Science, 1938, 84, 284-346.

Dewey, J. How We Think. Heath, D. C., 1933.

Ekstein, R. The Challenge: Despair and Hope in the Conquest of Inner Space. New York: Brunner/Mayel, Inc., 1971.

Ekstein, R. Children of Time and Space, of Action and Impulse, New York: Appleton-Century-Crofts, 1966.

Evarts, E. A neurophysiologic theory of hallucinations. In Hallucinations, L. West (Ed.), New York: Grune & Stratton, 1961.

Fechner, G. T. Elements of Psychophysics. Leipzig: Breitkapf, 1889.

Feinberg, I. A comparison of visual hallucinations with those induced by Mescaline and LSD-25. In Hallucinations, L. West (Ed.), New York: Grune and Stratton, 1961.

Feinberg, I. Hallucinations, dreaming, and REM sleep. In Origins and Mechanisms of Hallucinations, W. Keup (Ed.), New York: Plenum Press, 1971.

Freud, S. Project for a Scientific Psychology (1895). In The Standard Edition of the Psychological Works of Sigmund Freud. J. Strachey (Ed.), London: Hagarth Press, 1962, I.

Freud, S. Formulations on the Two Principles of Mental Functioning (1911). In The Standard Edition of the Psychological Works of Sigmund Freud. J. Strachey (Ed.), London: Hagarth Press, 1962, II.

Freud, S. Instincts and Their Vicissitudes (1915). In The Standard Edition of the Psychological Works of Sigmund Freud. J. Strachey (Ed.), London: Hagarth Press, 1962, III.

Freud, S. New Introductory Lectures on Psychoanalysis. New York: Norton and Co., 1933.

Galton, F. Inquiries into the Human Faculty and Development. London: Macmillan Co., 1883.

Goldstone, S. Psychophysics, reality, and hallucinations. In Hallucinations, L. West (Ed.), New York: Grune and Stratton, 1962.

Gordon, R. An investigation into some factors that favor the formation of stereotyped images. British Journal of Psychology, 1949, 39, 156-167.

Griffitts, C. Individual differences in imagery. Psychological Monographs, 1927, 37, 172.

Harris, J. Towards a structural theory of hallucinations. In Origins and Mechanisms of Hallucinations, W. Keup (Ed.), New York: Plenum, 1970.

Hartman, H. Contributions to the metapsychology of schizophrenia (1953). In Essays and Ego Psychology, New York: International Universities, 1964.

Havens, L. The placement of and movement of hallucinations in space: phenomenology and theory. International Journal of Psychoanalysis, 1964, 43, 426-436.

Holt, R. Imagery--the return of the ostracized. American Psychologist, 1964, 19, 254-264.

Isakower, O. The exceptional position of the auditory sphere. International Journal of Psychoanalysis, 1939, 20, 347-350.

Jacobsen, E. The Self and the Object World. New York: International Universities, 1964.

James, W. The Principles of Psychology. New York: Dover Publications, 1918.

Laing, R. D. The Divided Self. Baltimore, Md.: Penguin Books, 1965.

Merleau-Ponty, M. The Phenomenology of Perception. New York: Humanities Press, 1962.

Mintz, S. and Alpert, M. Imagery vividness, reality testing, and schizophrenic hallucinations. Journal of Abnormal Psychology, 1972, 79, 310-316.

Modell, A. Hallucinations in schizophrenic patients and their relation to psychic structure. In Hallucinations, L. West (Ed.), New York: Grune and Stratton, 1962.

Mourge, R. Newsbiologic de L'hallucination. Brussels, Lamentin, 1932.

The Concise Oxford Dictionary of Current English. Oxford: The Clavendon Press, 1911.

Perky, G. W. An experimental study of imagination. American Journal of Psychology, 1910, 21, 422-452.

Piaget, J. Play, Dreams, and Imitation in Childhood. New York: W. W. Norton, 1951.

Prince, M. An experimental study of the mechanisms of hallucinations, Journal of Nervous and Mental Disease, 1922, 248-256.

Rapaport, D. Organization and Pathology of Thought. New York: Columbia University, 1951.

Rapaport, D. Cognitive Structures (1957). In The Collected Papers of David Rapaport, M. Gill (Ed.), New York: Basic Books, 1967.

Rapaport, D. States of Consciousness (1956). In The Collected Papers of David Rapaport, M. Gill (Ed.), New York: Basic Books, 1967.

Rapkin, M. The Power of Pretend. Privately published, 1973.

Reed, G. The Psychology of Anomalous Experience. London: Hutchinson, 1972.

Reis, E. Are hallucinations illusions? Journal of Psychology, 1959, 48, 367-373.

Richardson, A. Mental Imagery. New York: Springer Publishing, 1969.

Richardson, A. Voluntary control of the memory image. In The Function and Nature of Imagery, P. Sheehan (Ed.), New York: Academic Press, 1972.

Roman, R. and Landis, C. Hallucinations and mental imagery. Journal of Nervous and Mental Disease, 1945, 102, 327-334.

Sarbin, T. The concept of hallucination. Journal of Personality, 1967(a), 35, 359-380.

Sarbin, T. and Juhasy, J. The historical background of the concept of hallucination. Journal of History of the Behavioral Science, 1967, 3, 339-358.

Sarbin, T., Juhasy, J., and Todd, P. The social psychology of hallucinations. Psychological Record, 1971, 21, 87-93.

Schafer, R. Aspects of Internalization. New York: International Universities, 1968.

Schilder, P. Experiments on imagination, after-images, and hallucinations. American Journal of Psychiatry, 1933, 13, 597-609.

Segal, S., and Nathan S. The Perky effect: the incorporation of an external stimulus into an imagery experience under placebo and control conditions. Perceptual and Motor Skills, 1964, 18, 385-395.

Segal, S. and Blicksman, M. Relaxation and the Perky effect. American Journal of Psychology, 1967, 80, 257-262.

Segal, S. The Perky effect: changes in reality judgments with changing methods of inquiry. Psychonomic Science, 1968, 12, 393-394.

Segal, S. Patterns of response to thirst in an imagery task as a function of cognitive style. Journal of Personality, 1968, 36, 574-588.

Segal, S. Influence of imaged pictures and sounds on detection of auditory and visual signals. Journal of Experimental Psychology, 1970, 83, 458-464.

Segal, S. Imagery and reality: can they be distinguished? In Origins and Mechanisms of Hallucinations, W. Keup (Ed.), New York: Plenum, 1970.

Segal, S. Processing of the stimulus in imagery and perception. In Imagery: Current Cognitive Approaches, New York: Academic Press, 1971.

Seity, P. and Molholm, H. Relation of mental imagery to hallucinations. Archives of Neurological Psychiatry, 1947, 57, 469-480.

Sheehan, P. A shortened form of Bett's Questionnaire on Mental Imagery. Journal of Clinical Psychology, 1967, 23, 386-389.

Singer, J. Daydreaming. New York: Random House, 1966.

Snyder, I., and Cohen, L. Validity of imagery testing in schizophrenia. Character and Personality, 1940, 9, 36-42.

Spanos, N., and Barber, T. X. Hypnotic experiences as inferred from subjective reports. Journal of Experimental Research in Personality, 1968, 3, 136-150.

Thale, T., Galrio, R., and Solomon, K. Hallucinations and imagery induced by mescaline. American Journal of Psychiatry, 1950, 106, 686-691.

Wax, D. Learning how to pretend: a distinction between intent and pretense observed in the treatment of a borderline psychotic boy. British Journal of Medical Psychology, 1973, 46, 297-302.

Werner, H. The Comparative Psychology of Mental Development. Chicago: Follett, 1948.

West, L. A general theory of hallucinations and dreams. In Hallucinations, New York: Grune and Stratton, 1962.

Winnicott, D. Playing and Reality. London: Tavistock Publications, 1971.

Zukeman, M. Reported sensations and hallucinations in sensory deprivation. In Origins and Mechanisms of Hallucinations, W. Keup (Ed.), New York: Plenum Press, 1970.

APPENDICES

APPENDIX A

Table 1

Imagery Test Scores

Mode	Betts (V) ($\bar{X}$ rating)	Griffitts (M) (% responses in mode)	Gordon (c) (# yes responses/ total responses)
Subject 3			
Visual	3.2	36	6/6
Auditory	2.6	40	5/6
Tactual	2.2	12	5/6
Kinesthetic	1.6	8	4/6
Olfactory	3.0	4	4/6
Taste	2.4		6/6
Somatic	2.8		
Subject 4			
Visual	3.8	84	2/6
Auditory	3.2	12	4/6
Tactual	3.4		5/6
Kinesthetic	3.2		3/6
Olfactory	6.2		3/6
Taste	4.4		5/6
Somatic	4.8		
Subject 5			
Visual	unable to complete	72	1/6
Auditory	all items		1/6
Tactual			3/6
Kinesthetic		4	5/6
Olfactory			1/6
Taste			5/6
Somatic			
Subject 6			
Visual	2.0	72	3/3
Auditory	3.2		1/3
Tactual	2.2		2/3
Kinesthetic	2.6	16	3/3
Olfactory	2.0		1/3
Taste	2.4		2/3
Somatic			

Table 1 (continued)

Mode	Betts (V) ($\bar{X}$ rating)	Griffitts (M) (% responses in mode)	Gordon (c) (# yes responses/ total responses)
Subject 7			
Visual	1.3	52	5/6
Auditory	2.6	32	5/6
Tactual	3.0	12	6/6
Kinesthetic	2.2	4	6/6
Olfactory	1.0		6/6
Taste	1.8		6/6
Somatic	1.8		6/6
Subject 8			
Visual	1.6	68	6/6
Auditory	4.2	12	3/6
Tactual	3.4	16	5/6
Kinesthetic	3.8		6/6
Olfactory	3.2	4	6/6
Taste	5.0		6/6
Somatic	2.8		
Subject 9			
Visual	2.0	52	5/6
Auditory	2.6	32	5/6
Tactual	3.0	12	6/6
Kinesthetic	1.4		6/6
Olfactory	1.4	4	6/6
Taste	1.6		6/6
Somatic	1.2		

NOTE: Subjects 1 and 10 did not complete any of the imagery tests; subject 5 completed only isolated items on the Betts Vividness of Imagery Scale.

Hallucinatory modes for subjects are as follows:

Subject 1	Visual
Subject 3	Visual, auditory
Subject 4	Visual
Subject 5	Visual, auditory, olfactory
Subject 6	Auditory
Subject 7	Auditory
Subject 8	Visual
Subject 9	Visual
Subject 10	Visual, auditory

APPENDIX B

STATEMENT OF INFORMED CONSENT

This research project is being conducted by Patrick Mahoney, doctoral student in Clinical Psychology at the University of Tennessee, and is being carried out at Eastern State Psychiatric Hospital. The purpose of the research project is to describe the imaging abilities and behaviors of a selected group of hospitalized psychiatric patients. Imaging refers to behaviors such as dreaming, daydreaming, and calling to mind objects and experiences not at that time immediately present.

The results of this study will be published as part of a dissertation to be submitted to the Graduate School of the University of Tennessee as part of the requirement for completing the doctoral degree in Psychology.

You are being asked to assist in this project and your decision will have no effect on your care and treatment while you are a patient at ESPH. If you decide to assist in this project you will be expected to participate in a series of three 1-2 hour interviews with Patrick Mahoney. These interviews will cover your imagery experiences such as dreams and daydreams and your experience on a variety of imagery tasks and tests. The tests to be used will include the Betts Vividness of Imagery Scale, the Griffitts Imagery Modality Test, the Gordon Test of Imagery Control, and the Singer Imaginal Process Inventory.

Your discussion of your experiences will be recorded verbatim in written form and along with your responses to the tests are to be kept on file subject to the following conditions and limitations:

(a) The only persons with access to the specific data you contribute will be the principle investigator, Patrick Mahoney, and the professors on his doctoral committee. The data will be identified only by number and the identity of the subjects will be known only by the principle investigator.

(b) Upon completion of the study the records of the individuals participating in the study will be destroyed.

(c) At no time will any portion of the interviews or tests be available to any other person than the above herein stated, and for no other purpose other than the above herein stated.

I understand that if I find participation unduly discomforting or objectional in any way that I am free to stop my participation at any time I choose. I also understand that if I choose to cease my participation, any data collected to that point will be destroyed if I so wish it.

I have read this statement and I understand that I am consenting to the interviews and tests, the procedures and limitations of which have been stated herein above. I am not now, nor have I been subjected to any duress or undue influence in regard to this project. I hereby agree and consent to such interviews as may be required to achieve a successful completion of this project.

This instrument constitutes the whole and complete agreement between myself and the project on Imagery of Selected Psychiatric Patients.

_____ _____

Date Signature of Volunteer

I hereby state that I have discussed this project with the above signed patient and he/she fully understands the conditions and requirements of this agreement.

_____ _____

Date Signature of Witness

THE BETTS QMI VIVIDNESS OF IMAGERY SCALE

INSTRUCTIONS FOR DOING TEST

The aim of this test is to determine the vividness of your imagery. The items of the test will bring certain images to your mind. You are to rate the vividness of each image by reference to the accompanying rating scale, which is shown at the bottom of the page. For example, if your image is "vague and dim" you give it a rating of 5. Record your answer in the brackets provided after each item. Before you turn to the items on the next page, familiarize yourself with the different categories on the rating scale. Throughout the test, refer to the rating scale when judging the vividness of each image. A copy of the rating scale will be printed on each page. Complete each page before moving on to the next page. Try to do each item separately independent of how you may have done other items.

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

An example of an item on the test would be one which asked you to consider an image which comes to your mind's eye of a red apple. If your visual image was moderately clear and vivid, you would check the rating scale and mark "3" in the brackets as follows:

ITEM	RATING
5. A red apple	(3)

Now turn to the next page when you have understood these instructions and begin the test.

(1) Think of some relative or friend whom you frequently see, considering carefully the picture that rises before your mind's eye. Classify the images suggested by each of the following questions indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
1. The exact contour of face, head, shoulders and body	( )
2. Characteristic poses of head, attitudes of body, etc.	( )
3. The precise carriage, length of step, etc. in walking	( )
4. The different colours worn in some familiar costume	( )

Think of seeing the following, considering carefully the picture which comes before your mind's eye; and classify the image suggested by the following question as indicated by the degree of clearness and vividness specified on the Rating Scale.

5. The sun as it is sinking below the horizon	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

(2) Think of each of the following sounds, considering carefully the image which comes to your mind's ear, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
6. The whistle of a locomotive	( )
7. The honk of an automobile	( )
8. The mewing of a cat	( )
9. The sound of escaping steam	( )
10. The clapping of hands in applause	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

(3) Think of "feeling" or touching each of the following, considering carefully the image which comes to your mind's touch, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
11. Sand	( )
12. Linen	( )
13. Fur	( )
14. The prick of a pin	( )
15. The warmth of a tepid bath	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

(4) Think of performing each of the following acts, considering carefully the images which comes to mind's arms, legs, lips, etc., and classify the images suggested as indicated by the degree of clearness and vividness specified on the Rating Scale.

ITEM	RATING
16. Running upstairs	( )
17. Springing across a gutter	( )
18. Drawing a circle on paper	( )
19. Reaching up to a high shelf	( )
20. Kicking something out of your way	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	**Rating 1**
Very clear and comparable in vividness to the actual experience	**Rating 2**
Moderately clear and vivid	**Rating 3**
Not clear or vivid, but recognizable	**Rating 4**
Vague and dim	**Rating 5**
So vague and dim as to be hardly discernible	**Rating 6**
No image present at all, you only "knowing" that you are thinking of the object	**Rating 7**

(5) Think of tasting each of the following, considering carefully the image which comes to your mind's mouth, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
21. Salt	( )
22. Granulated (white) sugar	( )
23. Oranges	( )
24. Jelly	( )
25. Your favourite soup	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

(6) Think of smelling each of the following, considering carefully the image which comes to your mind's nose and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
26. An ill-ventilated room	( )
27. Cooking cabbage	( )
28. Roast beef	( )
29. Fresh paint	( )
30. New leather	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

(7) Think of each of the following sensations, considering carefully the image which comes before your mind, and classify the images suggested as indicated by the degrees of clearness and vividness specified on the Rating Scale.

ITEM	RATING
31. Fatigue	( )
32. Hunger	( )
33. A sore throat	( )
34. Drowsiness	( )
35. Repletion as from a very full meal?	( )

RATING SCALE

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only "knowing" that you are thinking of the object	Rating 7

GRIFFITTS IMAGERY TEST

"During this test please assume as much as possible the attitude of a passive spectator to what goes on in your mind. I will read a word from this list, and I want you to tell me just what comes into your mind as you think of the object. If it be the way it looks, answer "visual"; if some sound, answer "auditory" or "sound"; if some muscular activity on your own part answer "motor"; if it be a taste or smell, or heat or cold, answer accordingly. Don't try to get any particular kind of response, but let come what may. Please try to avoid the expression 'I thought of.' or 'I thought about.'"

	ITEM	RESPONSE
1.	A lamp	
2.	Rattling of a newspaper	
3.	Dog	
4.	Knife and fork	
5.	Water running from a faucet	
6.	Using a hammer	
7.	Automobile	
8.	A watch	
9.	Smoke from an engine	
10.	Opening a book	
11.	Coin lying in the hand	
12.	Locomotive	
13.	Telephone	
14.	Kitten	
15.	Rattling of leaves	
16.	Unfolding a newspaper	
17.	Coat	

ITEM	RESPONSE
18.	Sound of hammering
19.	Squirrel
20.	Rain beating against a window pane
21.	Scissors
22.	Toothbrush
23.	A clock
24.	Features of a cowboy
25.	Shoe

THE GORDON TEST OF IMAGERY CONTROL

This test is concerned with the ease with which you can control of manipulate images. For some people this task is relatively easy and for others relatively hard. One subject who could not manipulate his imagery easily gave this illustration. He visualized a table, one of whose legs suddenly began to collapse. He then tried to visualize another table with four solid legs, but found it impossible. The image of the first table with its collapsing leg persisted. Another subject reported that when he visualized a table the image was rather dim and vague. He could visualize it briefly but it was difficult to retain by any voluntary effort. In both these illustrations the subjects had difficulty in controlling or manipulating their visual imagery. It is perhaps important to emphasize that these experiences are in no way abnormal and are as often reported as the controllable type of image.

Listen to each question, then close your eyes while you try to visualize the scene described. Answer by saying "yes," "no," or "unsure," whichever is the most appropriate. Remember that your accurate and honest answer to these questions is most important for the validity of this study. If you have any doubts at all regarding the answer to a question, say "unsure."

	Yes	No
Visual		
(1) Can you see a red car standing in the road in front of a house?	___	___
(2) Can you see it as a different color?	___	___
(3) Can you see the same car laying upside down?	___	___
Auditory		
(1) Can you hear someone singing the Star Spangled Banner accompanied by a band?	___	___
(2) Can you hear the band playing it alone?	___	___
(3) Can you hear the person singing it by himself?	___	___
Tactile		
(1) Can you feel your hand submerged in warm water?	___	___
(2) Can you feel the water become very hot?	___	___
(3) Can you feel the water become ice cold?	___	___

Taste

(1) Can you taste the strong taste of sour, unsweetened lemonade? ___ ___

(2) Can you add the taste of sugar to the lemon? ___ ___

(3) Can you now imagine your drink tasting like water? ___ ___

Smell

(1) You came into a freshly painted room. Can you smell the smell of fresh paint? ___ ___

(2) Can you smell the odor change to a pleasant perfume? ___ ___

(3) Can you smell the odor change to car exhaust fumes? ___ ___

Motor

(1) Can you feel yourself throw a tennis ball as far as you can? ___ ___

(2) Can you feel yourself throw the ball gently to a small child? ___ ___

(3) Can you feel yourself try to throw a heavy lead weight? ___ ___

Motor-Kinesthetic

(1) Can you imagine yourself picking up a book off a table?
(2) Can you imagine that the book becomes very heavy as you lift it?
(3) Can you now imagine that the book becomes very light and lifts easily?

Smell

(1) Can you imagine walking through a kitchen and smelling fresh baked bread?
(2) Can you imagine the smell changing to barbequeing hamburgers?
(3) Can you imagine the smell changing to fresh popcorn?

Taste

(1) Can you imagine the taste of a vanilla ice cream cone?
(2) Can you imagine that the taste of the cone changes to chocolate?
(3) Can you imagine that the taste of the cone changes to strawberry?

Tactual

(1) Can you feel another person's hand as you shake their hand?
(2) Can you feel their grip tighten, squeezing hard on your hand?
(3) Can you feel their grip loosen and become limp?

Auditory

(1) Can you imagine hearing someone call your name?
(2) Can you imagine hearing your name called very loudly?
(3) Can you imagine hearing your name called very softly?

Visual

(1) Can you imagine seeing a red rubber ball?
(2) Can you imagine it becoming much larger?
(3) Can you imagine it shrinking and becoming much smaller?

IMAGERY INTERVIEWS

Each interview was recorded in writing. Because of difficulties in maintaining rapport, an exact interview structure was not adhered to in each case. The instructions introducing each imagery task are as follows:

Int.: "I am going to ask you to reflect on some different objects and after you've reflected on each, we'll talk about what you experienced."

(1) "First I would like you to call to mind a penny." (After about 15 seconds) "Can you describe what you experienced?"

(2) "Now I would like you to call to mind the breakfast table as you sat down to it this morning." (15 seconds) "Can you describe to me what you experienced?"

For both tasks, the subjects' complete description is recorded verbatim. Then, depending on the completeness of his description, any or all of the following probe questions will be asked.

(a) "Was your sense of it dim or clear?"

(b) "Were all the objects or qualities equally well defined or did some details seem to stand out?"

(c) "Did you notice any colors?"

(d) "Where did you experience your image, that is in front of you, in your head, etc.?"

(e) "Were you aware of any distractions or disturbing questions?"

(f) "Did your image change or move at all? How?"

The next task samples his imagery in different modes.

Visual: "Now I'd like you to see in your mind's eye . . ."

(1) A red apple. "Describe what you experienced."

(2) A scene inside a supermarket. (Same question repeated for each item.)

Auditory: "Now I'd like you to imagine hearing . . ."

(1) A police siren.

(2) A recording of "White Christmas."

Touch: "Now I'd like you to imagine feeling . . ."

(1) A pin prick.

(2) Yourself warm your hands near a fire.

Kinesthetic: "Now I'd like you to imagine yourself performing the following acts . . ."

(1) Picking up a book.

(2) Pounding a nail into a wall.

Taste: "Now I'd like you to imagine tasting . . ."

(1) Salt.

(2) Your favorite food.

Smell: "Now I'd like you to imagine smelling . . ."

(1) An orange.

(2) A rose.

The subjects' responses to each question are recorded verbatim.

The next series of questions relate to perceived control and are adapted from Rapkin (1973).

(1) "Now I'd like you to pretend that you are holding an apple in your hand. Notice its color, its shape, its weight, the texture of its skin."

"Keeping your eyes closed, I'd like you to stop pretending."

Q: "Did the apple disappear?"

"Are you aware of how you stopped imagining it?"

(2) "Now I'd like you to pretend that you are looking at an apple."

"Will you pretend that the apple changes into a grapefruit."

"Will you pretend that the grapefruit changes into a banana."

Q: "Did the fruit change when you wanted it to?"

"What were you aware of?"

(3) "Will you pretend that you are looking at the banana again."

"Will you pretend that you are peeling the banana."

"Will you pretend that the banana peels by itself."

Q: "Did you have any difficulty pretending this?"

"What were you aware of?"

The following questions require the subject to imagine a particular mood.

(1) "Will you now pretend that you are feeling sad."

Q: "What did you experience?"

(2) "Will you pretend that you are feeling angry."

Q: "What did you experience?"

(3) "Will you pretend that you are feeling happy."

Q: "What did you experience?"

The next task is a free fantasy procedure. The subject is given a setting and is asked to describe the course of his fantasy as it unfolds.

The instructions are as follows: "This time I am going to give you a scene and I want you to describe to me the action that takes place as it unfolds before your eyes. Lean back in your chair, close your eyes, and picture in your mind a field, a large open meadow. Can you picture that?"

"All right, now picture yourself walking in the meadow and begin to describe to me what you experience, and what you do in the meadow as you begin to explore it."

The subject's response is recorded verbatim.

Concerning the subject's normal imagery, his responses to the following questions will be recorded.

		Frequency	
Dreams:	(1) "How often do you dream?"		
	(2) "Are you usually able to remember your dreams?"	Yes	No
	(3) "Do you feel your dreams have any particular meaning?"	Yes	No

"Are you ever able to make any sense out of them?" "Could you give me some examples?"

(4) "Do you ever have frightening or scary dreams?" Yes No

"How often?" Frequency

"Could you describe them?"

Day-dreams: "Many people frequently let their minds wander during the day, daydreaming about things that might happen or that they would like to happen. Do you find that you do much daydreaming?"

(1) "How often would you estimate?"

(2) "What are your daydreams usually about?"

Next, the subjects will each be given the following tests and questionnaires: the Betts Vividness of Imagery Scale (Sheehan, 1967), the Griffitts Imagery Modality test (Snyder and Cohen, 1938), a form of the Gordon Test of Imagery Control (Richardson, 1972), and the Daydreaming Questionnaire (Singer and Antrabaus, 1963). These tests along with instructions given appear in the Appendix.

Finally, each subject will be questioned with regards to his hallucinatory experiences. The descriptions of the subject's hallucinations will probably present the greatest difficulties in obtaining accurate accounts primarily because of the subjects' past experiences in talking about them in a psychiatric setting. The interview will center around the following features:

(1) The reality of them.

"Do they ever question them?" "Are they always experienced with the degree of reality?" "Do they accept the label of hallucination for the experience?"

(2) Onset.

"When did they first occur?" "What was their initial reaction?"

"How frequently do they occur?" "When did they realize that this is a private experience?" "How did they resolve this?"

(3) Relation to the hallucination.

"Do they enjoy them?" "Are they frightened by them?"

"Do they experience any control over them?" "What private maneuvers do they use to try to control or rid themselves of the hallucinations? "Are the hallucinations trying to get control of them?"

(4) From their description the hallucinations will be typed according to (1) mode, (2) complexity, (3) theme (Folger, 1967), (4) inferred function.

VITA

Patrick Mahoney was born in Toledo, Ohio, on September 9, 1947 He attended elementary school in Toledo, Ohio and graduated from Central Catholic High School in 1965. In September 1965 he entered the University of Notre Dame where four years later in 1969 he received a Bachelor of Arts degree in Psychology.

He entered the University of Tennessee as a graduate student in Clinical Psychology in September of 1969. He completed a one-year internship in Clinical Psychology at the Miami Veteran's Administration Hospital in Miami, Florida in August of 1974. In August of 1976 he received a Doctor of Philosophy degree with a major in Clinical Psychology from the University of Tennessee.