The symptomatology and sequence of events in psychosis

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THE SYMPTOMATOLOGY AND SEQUENCE OF EVENTS IN PSYCHOSIS

A Thesis Presented

by

BARBARA ANN TINKER

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

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Department of Psychology
SYMPTOMS AND SEQUENCE IN PSYCHOSIS
A Thesis Presented
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INTRODUCTION

This study is an attempt to isolate some symptoms and their temporal sequence for a subgroup of psychotic individuals. Harry Stack Sullivan (1924, p.7), an astute observer of much that transpires in psychosis, once critiqued the research of the field so: "Striking,---peculiarly so in retrospect,---is the frequency with which the workers have passed early from the science to the philosophy of schizophrenia." There is currently little consensus as to the raw data of psychosis, and even less debate as to the course the symptoms might follow. Instead, the anguish, alienation and fantasy life of persons in psychosis have triggered a plethora of speculations, and the data of experience has been left behind. This study is an attempt to join those researchers presently working to unravel the confusion in psychotic phenomena by listening to what the patients themselves have to say.

Any approach to data, however, involves considerable selection, and the work to be presented departs from tradition in the way it attempts to separate data of the underlying process of psychosis from its psychological elaboration. Historically, the emotional states of a person in psychosis (e.g. mood swings, flattened affect) as well as a certain cognitive orientation to the social world (e.g. ambivalence, autism) have been considered the central pattern, while symptoms with psychological indications (such as perceptual distortions and motor anomalies) have been seen as the secondary elaborations. Partially because this
approach has not sufficiently succeeded in clarifying psychotic phenomena, and partially because advances have been made in the pharmacological treatment of psychosis, the work to be given here reverses the figure and ground, considering those events with likely physiological bases as primary, and much, though not all, emotional and cognitive symptomatology as responses to the primary core symptoms. It is important to note that, even with this reversal of emphasis, the successful isolation of symptoms and their temporal relationships would not necessarily imply a purely "physiological" etiology; psychological factors could well be responsible for setting the physiological disorder in motion, for directing its course, and for shaping its impact upon the person.

Data for the study were drawn from the autobiographical accounts of persons in remission from psychotic episodes. Such material is being increasingly researched for information otherwise unavailable to those who observe, measure, and test ongoing psychotic phenomena. The criteria for acceptance in the study were that the writers be sensitive to physiological changes occurring and able to describe them, and that they have experienced symptoms from several selected clusters of symptoms.

Half of the autobiographical accounts were scored extensively for a wide range of symptoms. The most "robust" symptoms appeared to be those also found in the research on epilepsy, brain stimulation and lesion, and these were then included. The symptoms were then divided into units of shared characteristics,
and a master sequence was developed. The sequence was tested against the second half of the autobiographies.

This study represents a pilot project, characterized by its reliance on written accounts of psychotic patients and by the subjective nature of the scoring procedures. Its goal was to begin to clarify central symptoms, to suggest some symptom clusters, and a sequence progression, all of which might be further tested in an in-patient setting.

The study outlines, in Chapter One, the background work on symptomatology and course in psychosis. Chapter Two describes the methodology employed in selecting the autobiographical accounts, deriving the core symptoms and units of symptoms, developing a hypothesized master sequence of symptom units, and testing the hypothesized sequence. The results are presented in Chapter Three. Chapter Four then considers the psychological and physiological implications of the study, and makes recommendations for further work.
Classification of the Psychoses

Definitions of psychoses have been sufficiently vague to encompass a wide range of behavioral, emotional, and cognitive changes. Persons moving about in wild elation; persons immobilized with depression; persons showing no emotional responsivity at all, may be labelled psychotic. Patients performing certain behaviors repetitively, or constantly shifting attention; those with elaborate conceptual schemes and those who cannot produce one meaningful phrase; those who break suddenly into violence and those who withdraw gradually over decades—all may be "psychotic".

In an effort to create more meaningful groupings, the psychoses have customarily been apportioned along diverging dimensions: rate, periodicity, amplitude, symptomatology, response to therapy, the presence or absence of any known organic factor. For example, the diagnosis "Paranoid Schizophrenia" has been based on the presence of an explanatory system, while "Manic-Depression" emphasizes emotionality and periodicity. "Catatonia" refers to a motoric dysfunction.

Perhaps the most fundamental distinction is that made between the "organic" and the "functional" psychoses. It is well established that many disease processes, e.g. the encephalides, cerebral tumors and traumas, meningeal infections and the epilepsies, all can generate psychotic states. (For a thorough review, see Dawson and Bagley, 1969).
It has been the assumption of many workers in the field that once the "organic" psychoses are isolated, the remainder would comprise a unified group. Neither assumption—that the remaining psychoses would be necessarily related, or that they would be found to be "psychological" in etiology and course—is logically necessary. Use of this division, therefore, cannot guarantee subject homogeneity, and reliance upon this division may even prove harmful. Psychoses of known organic causes may provide important suggestions as to the cerebral structures and biochemistry involved in the radical alterations of consciousness in the "functional" psychoses.

Among the "non-organic" psychoses, the most frequently cited division is that between schizophrenia and mania and/or depression. Kraeplin (1896) was the first to gather together a variety of conditions (paranoia, hebephrenia, catatonia) under Dementia Praecox, and to separate them from the Affective Disorders. These, the manic-depressive states, were, he felt, more predictable and tending to have a better outcome. The group of disorders he labelled Dementia Praecox were considered unpredictable, and tending towards deterioration. This distinction has been buttressed by pharmaceutical findings, with bipolar patients responding preferentially to lithium, and some schizophrenic groups responding to the phenothiazines and butyropheones (Shopsin, Kim & Gershon, 1970).

While the distinction between the two sets of disorders may have proved therapeutically useful, it may also have obscured the ways in which symptoms, and perhaps course, are shared. In
fact, the schizophrenic and manic-depressive disorders share so many symptoms (Rennie, 1942; Carlson, 1972) that differential diagnoses cannot be made reliably. Shakow (1970), for example, reports that "of 57 patients diagnosed to have dementia praecox at Boston Psychopathic Hospital, 12% were so diagnosed at Boston State Hospital and 37% so diagnosed at Worcester State Hospital. Of 134 patients diagnosed manic-depressive at Boston Psychopathic Hospital, 28% were so diagnosed at Boston State Hospital and 10% were so diagnosed at Worcester State Hospital." An NIMH study found the following "schizophrenic" symptoms among "manic" patients: hallucinations, ideas of reference, paranoid ideation, symbolism. Furthermore, a severe depression is frequently (50%) found following an acute schizophrenic reaction (McGlashan & Carpenter, 1976).

Laying aside temporarily the diagnostic categories of the organic and affective psychoses, it is important to consider the distinctions made among the schizophrenias. One common division is that based on tempo, a "chronic", insideous onset being set apart from an acute psychotic break. It has been argued that the importance of the distinction lies in the prognosis, with the chronic pattern having the worse outcome. But again the symptomatology is shared between the two groups, so much so that Astrup and Noreik (1966) have recommended a return to a unified concept of schizophrenia.

The utility of the traditional subcategories of schizophrenia—hebephrenia, paranoia, catatonia, simple—and the newer subcategories of schizo-affective, borderline schizophrenia and the
like, are similarly in question. Van Praag (1976, p. 482) summarizes the traditional groupings so:

To begin with, there is hebephrenia: an exhuberant psychiatric syndrome with massive delusions and/or hallucinations, loss of contact with the environment, and loss of initiative, which usually starts at an early age, i.e. during puberty or early adolescence. Next comes paraphrenia, in which the patient develops systematized but encapsulated paranoid delusions but shows no overall disintegration of the entire personality (which is why some psychiatrists do not regard this syndrome as schizophrenic). Unlike paraphrenia, dementia paranoïdes is characterized by hardly systematized paranoid delusions and progression of the entire personality. The predominant features in dementia simplex are loss of initiative and autism, while delusions and hallucinations are not very pronounced. Catatonia, finally, is a psychotic syndrome characterized by predominance of motor disorders such as stereotypies, stupor, grimacing, etc.

Van Praag comments dryly that "Not by any stretch of the imagination can these syndromes be brought under a common denominator" (p. 482). Numerous writers have pointed to the capacity of patients to move from one diagnostic subcategory to another. Arieti (1955, p. 333) writes:

A patient who, in the beginning of psychoses, has a paranoid symptomatology, may all of a sudden change into a catatonic state. Subsequently he may be decatonized and exhibit paranoid symptoms.

In Kety and Mattysse (1972, p. 380) Meehl comments:

It is reasonable to believe that there is some common core behind the manifestations of schizophrenia. This accords with the fact that a single patient, if followed
over long enough time, may present the 'textbook syndrome' for one subtype at one time and another, equally classic picture of another subtype at another.

This study will propose that the subcategories are descriptions of particular stages along the course of psychosis, and of personality variables in interaction with the disorder.

The Symptomatology of Psychosis

There has been relatively little disagreement as to the symptoms central to manic or depressive conditions. Manic symptoms typically include: elevated though unstable mood, flight of ideas, psychomotor activity. Depressive symptoms include: difficulties in thinking, depression, and psychomotor retardation (Henderson & Gillespie, 1956).

If one postulates a unified concept of schizophrenia, however, the central task of defining those symptoms basic to this disorder becomes more difficult.

Kraepelin felt certain symptoms were characteristic of "dementia praecox". They include:

Hallucinations, usually of an auditory or tactile nature; decrease of attention towards the outer world; lack of curiosity; disorders of thought, especially of the 'Zerfahrenheit'-type with unusual or partly incomprehensible associations; changes of speech consequent upon the thought disorder, such as incoherence; lack of insight and judgment; delusions; emotional blunting; negativism; stereotypies.

(IPSS, 1973, p.15)

When Bleuler added the category of Simple Schizophrenia to the Dementia Praecox group, and retitled Dementia Praecox "Schizo-
phrenia," he emphasized the separation of fundamental symptoms ("Grundsymptome") from accessory symptoms ("Akzessrische symptome"), the latter representing psychological responses to the primary process.

Primary symptoms were the following: disturbances of associations, thought disorder, changes in emotional reactions, tendency to prefer fantasy to reality, tendency to seclude oneself from reality, being autistic. The secondary symptoms were hallucinations, delusions, catatonic symptoms, and all kinds of behavioral anomalies. (IPSS, 1973, p.16)

Schneider (1939) objected to the vague quality of Bleuler's primary symptoms, and worked to distinguish "first rank" symptoms (those which are easy to use and have reliable diagnostic value) from second-rank symptoms. First rank symptoms include:

"Gedankenlautwerden" (patient hearing his own thoughts spoken aloud); hearing voices talking to each other, voices that comment on the behavior of the patient; feelings of influence on bodily functions; interference with thoughts; thoughts stealing; communication of own thoughts to others; and feelings of being influenced from the outside with regard to emotions, drives, and volition.

(IPSS, 1973, p.19)

His "second-rank" symptoms, those traditionally used but hard to define include:

...other hallucinations than than those mentioned: paranoid ideas; perplexity; depression or elation; feeling of loss or emotions.

(IPSS, 1973, p.19)
The most promising empirical work of recent date has been done by the World Health Organization (WHO), which, together with NIMH, organized the International Pilot Study of Schizophrenia (IPSS) in 1966. The IPSS project found that, while there was agreement as to the symptomatology of mania, schizophrenia and psychotic and neurotic depression, there was far less agreement as to the subcategories of schizophrenia (IPSS, 1973). A "nuclear syndrome", however, was isolated in the diagnosis of schizophrenia including: auditory hallucinations as experienced as originating in some part of the person's body, voices experienced as talking about the patient in the third person, voices commenting on the patient's thoughts, repeating his thoughts aloud or commenting on something he is reading, experiences like thought intrusion or thought broadcast or hearing one's own thoughts aloud, and delusions of control (Wing & Nixon, 1975).

These symptoms represent those which tend to generate a diagnosis of schizophrenia. They were not arrived at through direct inspection of the data of psychosis, but rather indirectly, through a consensus among practitioners. Another weakness of the symptoms may be the continued exclusion of a variety of symptoms with possible physiological bases (the IPSS claims to be working on a "disease" model) such as raw auditory sounds, and inclusion of those with strong psychological overtones such as delusions of control.

Recently Bowers (1968, p.19) lists as symptoms characteristic of the schizophrenic state:
Experiences of heightened awareness, intensification of sensory experience, broadening of the experiential field of personal relevance, alterations in the sense of self, hyperamnesias, externalization of conflict with invasion of various perceptual and cognitive modalities.

While the above symptoms represent genuine contributions to the collection of psychotic symptomatology, their vagueness of definition undermines their usefulness, and further work must be done to define the changes in awareness and attention.

The recent rise in usage of the "schizo-affective" diagnostic category is evidence of the ways in which symptoms in the affective and schizophrenic categories overlap. In sum, symptoms alone cannot reliably distinguish among the manic, depressive, and schizophrenic states. There may be, hidden amongst the symptoms, however, temporal patterns which could form the nuclei for a more reasonable diagnostic procedure.

The Course of Psychosis

Why has the course of the psychotic experience been so hard to trace? First, the diagnostic confusion outlined above has made meaningful groupings of psychotic persons difficult. Second, the course of psychosis appears to have many variables, including rate, duration, intensity and cyclicity. Furthermore, as Bleuler noted in 1911, "in each individual case the disease may take a course which is both qualitatively and temporally rather irregular. Constant advances, halts, recrudescences or remissions are possible at any time" (p.245). Third, many theoretical positions on the etiology of psychosis make no
prediction as to course, and thus have not encouraged scrutiny of the symptom sequence. Fourth, those symptoms which have most intrigued clinicians--changes of mood and cognitive positions--may be secondary responses to the disorder itself, more subject to fluctuations in the environment.

Many clinicians have noted that one symptom often precedes another, and have gone on to ascribe causality to the first symptom. Chipley (1859) remarked that his patients who had difficulty eating often experienced hallucinations later, and he concluded that fear of food (situmania) caused perceptual change. Similarly Bucknill (1857) concluded circulatory troubles, where "the forehead is flushed, the face hot, the conjunctiva extended, the carotid and temporal arteries beat strongly" to be the cause of mania. Freud (1911) noted in his one psychotic case study that Judge Schreber evinced considerable sexual concerns, and concluded that repressed homosexuality lay behind symptoms of paranoia. McGhie and Chapman (1958) have focused on attentional changes in early psychosis, and attribute later developments to these changes.

Aside from these clinical observations, there is very little proposed for a course. Arieti (1955) suggested four stages of schizophrenia, although these stages remain fairly vague. They include an initial stage of panic and insight, an advanced stage of apathy and withdrawal, a preterminal stage in which the more florid symptoms fade away and regressive signs continue to intrude.

Bowers (1968, p.17) was struck by the possibility of a
course in accounts of schizophrenia given to him by patients. The redundancy in the accounts is noteworthy. It is precisely the recurrence of pattern which first caught my eye.

He suggests a sequence beginning with a sense of impasse, a feeling of heightened awareness, a press for meaning as well as the beginnings of hallucinations, and the eventual destruction of one's sense of identity. (See pp. 49-52 for a more thorough presentation of Bowers' views.) No attempt was made to support his thesis with quantitative data, and the categories remain unwieldy, yet his process of observing closely the unfolding of events in psychosis was one needed badly in the field.

Bowers' observation of a pattern was shared by one author of the autobiographies under study.

It seemed, however, that we were all suffering from different stages of the same disease...looking and talking around me, I found many patients who were suffering from the same symptoms I had experienced earlier in my illness (Stephan, 1965, p.140).

Carlson and Goodwin (1973) noted enroute to studying the "stages of mania" that their manic patients shared many symptoms often characterized as "schizophrenic"; their stages may thus be taken as suggestive for a range of psychotic states. They present three stages, an initial stage of expansive grandiosity, increased sex and activity, thoughts of religion and travel, racing thoughts; an intermediate stage of anger, paranoid emotions and cognitive disorganization; and a final stage including ideas of reference, disorganization, and rare visual hallucinations.
Although the data collection and analysis was unsystematic, the work makes an important contribution.

Carlson and Goodwin (1973, p.228), in their summary, stated a position increasingly shared by psychological and biological researchers, and taken for the foundation of the present study:

...the lack of clarity concerning proper diagnostic boundaries has often clouded the interpretation of the psychobiological data in affective illness. The use of longitudinal sequential analysis of changing symptom patterns, rather than simple cross-sectional enumeration of symptoms, should result in increased diagnostic clarity.
METHODOLOGY

Materials

Data for this study were drawn exclusively from the autobiographical accounts of persons in remission from psychotic episodes. These include accounts published and unpublished, book-length and brief accounts written to therapists. The writers are of many ages, both sexes, and represent a variety of diagnoses. The accounts accepted as sources of data had to meet the following criteria:

1. The author appeared capable of giving a reliable account, substantiated whenever possible by an outside authority.

2. The author experienced symptoms from several of the symptom units described in the next section (especially pp. 22-24).

It was not possible to exclude persons on the basis of suspected organic damage, as most recitals included no medical evidence, and as many were written before sophisticated procedures, capable of picking up the more elusive organic signs, had been developed.

The autobiographical accounts were divided into two groups of 25 each, henceforward referred to as Group A and Group B. Group A was used to derive the symptoms, symptom units, and suggestions for a Master Sequence of the units. Group B was then scored and tested against the Master Sequence. The two groups with their diagnoses are displayed on pages 14 through
17. The diagnoses are noted with the following abbreviations:

S. - schizophrenia
A.S. - acute schizophrenia
P.S. - paranoid schizophrenia
C.S. - catatonic schizophrenia
M-D - manic-depressive
A.P. - affective psychosis
? - no diagnosis available
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Derivation of the Core Symptoms and the Units of Analysis

In an initial survey of the Group A autobiographies an attempt was made to note symptoms of any nature, including emotional states, cognitive symptoms, perceptual alterations, and behavioral changes. Certain symptoms, however, appeared to be more robust than others, more likely to recur in the case histories and, probably not without reason, in the literature of brain research. Because of the similarity of a number of the case history symptoms to those described in epilepsy, in the brain stimulation work of Penfield, and in the drug-induced psychosis of amphetamines, it was decided to pursue symptoms that were in this sense redundant, and to discard those symptoms more easily affected by personal history and environment.

As this procedure may appear to be avoiding "the heart of the matter" of psychosis while emphasizing what is superficial, the reader is invited to consider the section in Appendix B, pp. 123-168, containing quotations from the autobiographies, and to note the communality of these symptoms with those generated in areas of brain research to be described below.

Epilepsy

The similarity of epileptic and psychotic symptoms has been noted by a number of writers (Gruhle, 1936; Slater, Glithero & Beard, 1963; White, 1973). Consider the description of epilepsy given by the writer of antiquity, Soranus:

Heaviness and giddiness in the head, an inner noise, which is felt in the occiput too, tension in the eyes, ringing in the ears or difficulties of hearing; and together with vertigo, dimness of the eyesight or
something hanging down before the eyes, as it were either similar to the spots of marble the Greeks call 'marmarygas' or similar to spider webs or to very thin clouds or to small flying animals like mosquitoes. The patients also perceive tiny sparks, so to speak, or fiery circles borne around before their eyes.

(Sakel, 1958, p.25-26) lists the following aura symptoms, signs which presage a more generalized convulsion:

...red spots, or golden clouds...engulfed in momentary darkness...a buzzing or persistent humming in either or both ears...distortion of sound or volume...

If auditory auras occur, which is not frequent, they are usually accompanied by vertigo...numbness or tingling sensation...a very pungent, distinct or unusual odor...a peculiar, unaccustomed, generally bitter taste in the mouth...extreme dizziness, a strong feeling of impending death...loss of direction...

partially developed motorial convulsive spasm.

Stevens (1956, p.229-232) includes as signs of temporal lobe epilepsy:

nausea...tinnitus, sound distorted...electricity...racing thoughts...epigastric sensation...hot and cold feelings...fight or flight behaviors...foreboding...

pleasant or unpleasant odors...tingling...nudity, memory loss...a peculiar taste...visions...gagging, vomiting...familiarity, strangeness...automatisms...auditory hallucinations.
Brain Stimulation

Many of the symptoms isolated in the Group A autobiographies and encountered in epilepsy have also been reproduced by Penfield (1950, 1955, 1958, 1959) in a series of stimulations of the cortex. Among those symptoms are found:

- ringing, humming, clicking, rushing, chirping,
- buzzing, knocking, rumbling sounds... deafness...
- flickering lights, dancing lights, colors, brief lights, stars, wheels, a long white mark, shadows moving up and down... a disagreeable odor... autonomic responses... automatic behaviors such as swallowing, grasping, motor spasms, turning, conjugate gaze (1950)...
- nausea (1955)... macropsia and micropsia... a nameless dread... tingling, numbness, a false sense of movement... memories, voices, music... déja-vu, jamais-vu (1959).

Penfield, using only cortical stimulation, did not evoke de novo visual hallucinations, but Dobele (1973), stimulating subcortical regions, successfully (and serendipidously) evoked the visual hallucination of a person not present in the operating room, a person who disappeared when the stimulating current was turned off, and who was not seen when the patient was told the current was on, when in fact it was not.

Amphetamine Psychosis

The strongest contender for a pharmacological "model psychosis" is the psychosis triggered by either large doses or chronic use of amphetamines. The phenomenology is reportedly indistinguishable from schizophrenia, particularly in its paranoid form, and the symptoms may be relieved by the same phenothiazines and butyrophenones that are currently used to
treat "functional schizophrenia" (e.g. Angrist, Sathanian, Wilk & Gershon, 1974; Groves & Rebec, 1976).

Symptomatology includes:

- paranoia and stereotyped behavior, heightened activity, press of speech, insomnia and anorexia, flashes of insight and a press for meaning, auditory hallucinations, visual and tactile hallucinations (Ellinwood, 1967)...
sympatheticomimetic signs, hyperthermia, locomotor and postural abnormalities, depression and lethargy (Groves & Rebec, 1976)...

The Creation of Symptom Units

Those symptoms which were most redundant throughout both the autobiographies and the physiological literature cited above, and which, in addition, tended to suggest a predictable placement in a temporal order were retained. These then were arranged into units along psychopathological and physiological dimensions. Several psychologists confirmed the "face validity" of the units by sorting the symptoms under the unit headings. Those symptoms which did not appear to belong to any of the categories were either discarded or placed in separate units. Symptoms which reappeared under several units, such as loss of sleep, inability to eat, while being recognized as important signs, were also discarded for statistical reasons. The final fourteen units employed are displayed in Table 3, on p. 22-24. The unit headings delimit the dimension used to arrange the symptoms, and the code letters represent the way in which the symptom was scored. The order in which the units are presented represent a first approximation at their temporal relationship.
## TABLE 3
The Arrangement of Symptoms into Units

<table>
<thead>
<tr>
<th>Unit 1: Heightened Activity</th>
<th>Code</th>
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<tbody>
<tr>
<td>1. Flight of ideas</td>
<td>ITGT</td>
</tr>
<tr>
<td>2. Increased communication</td>
<td>ISPE</td>
</tr>
<tr>
<td>Press of speech</td>
<td>IWRI</td>
</tr>
<tr>
<td>Increased writing</td>
<td>IREA</td>
</tr>
<tr>
<td>Increased reading</td>
<td>ISEX</td>
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<tr>
<td>3. Heightened and changed sexuality</td>
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<table>
<thead>
<tr>
<th>Unit 2: Increased Attribution of Meaning</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>1. Increased sense of significance</td>
<td>IMEA</td>
</tr>
<tr>
<td>2. Flash of insight</td>
<td>FINS</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Unit 3: Premonition of Disaster</th>
<th>Code</th>
</tr>
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<tbody>
<tr>
<td>1. Sense of foreboding</td>
<td>PREM</td>
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</table>

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<thead>
<tr>
<th>Unit 4: Sympathetic Nervous System Arousal</th>
<th>Code</th>
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<tbody>
<tr>
<td>1. Increased heart rate</td>
<td>IHRT</td>
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<tr>
<td>2. Increased blood supply to the head</td>
<td>BLHD</td>
</tr>
<tr>
<td>3. Headaches (excluding sensation of sharp blow)</td>
<td>HDPN</td>
</tr>
<tr>
<td>4. Sounds in the ear (tinnitus)</td>
<td>HGNS</td>
</tr>
<tr>
<td>5. Vertigo and nausea</td>
<td>VERT</td>
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<tr>
<td>6. Hyperthermia, or sudden temperature changes</td>
<td>NAUS</td>
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<thead>
<tr>
<th>Unit 5: Complex Auditory Anomalies</th>
<th>Code</th>
</tr>
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<tbody>
<tr>
<td>1. Thoughts spoken aloud</td>
<td>TOUT</td>
</tr>
<tr>
<td>2. Articulated voices</td>
<td>HVOX</td>
</tr>
<tr>
<td>3. Music</td>
<td>HMUS</td>
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</tbody>
</table>
Unit 6: Fight and Flight

1. Attack on self or other
2. Flight
3. Nudity
4. Loss of memory for previous episode

Unit 7: Loss of Voluntary Postural Control

1. Compulsive posture
2. "Dysautomatization" of motor function

Unit 8: Odor

1. Olfactory hallucination

Unit 9: Complex Visual Losses

1. Loss of depth
2. Loss of size constancy
3. Loss of motion constancy
4. Loss of shape
5. Changes in brightness
6. Color changes

Unit 10: Decreased Reactivity and Activity, "Depression"

1. Severe fatigue, psychomotor retardation
2. Anaesthesia
3. Diminished taste

Unit 11: Primitive Sensory and Motor Signs

1. Electric shock sensation, tingling
2. Acute pains
3. Muscle spasms, limb extensions

Unit 12: Visual Hallucinations

1. Dots
2. Circle
3. Grating
4. Line
5. Object
6. Lilliputian figures
7. Person
8. Procession
9. Cascade
10. Scene

**Unit 13: Hallucinations of Touch and Position**

1. Hallucinations of touch
2. Hallucinations of position

**Unit 14: Loss of Consciousness**

1. Total or partial loss of consciousness

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<td>UNCP</td>
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Discussion of the Symptom Units

To clarify the meaning of the symptoms, and their groupings into units, this section provides examples of each symptom (more examples may be found on pp.123-168), and includes remarks on those features unifying the units that might possibly be unclear. Effort was made to comment occasionally upon the intriguing kinship between these symptoms and those found in particular areas of neurophysiological research.

Unit 1: Heightened activity, "Mania"

1. Flight of ideas
   I'm thinking about a million miles an hour, spinning fantastic webs. (Vonnegut, 1975, p.92)

2. Increased communication: writing, reading, speech.
   I began to write compulsively, and at the same time I was aware that I was developing schizophrenia. (Anon, 1955, in Kaplan, p.94)

3. Increased sexuality
   The increase in sexuality that was associated with the loss of inhibition had a terrifying impact during the early phases of the psychosis and was expressed symbolically in the experience of Hellfire. (Anon, 1955, in Kaplan, p.92)

These symptoms comprise the non-emotional, non-ideational aspects of the manic states. Clayton, Pitts and Winokur (1965, p.313) for example, point out that the salient characteristics of their 31 main subjects included "hyperactivity, euphoria, flight of ideas, push of speech, increased sexuality and decreased sleep."

The key symptoms of mania listed by the IPSS study (1973) are: subjectively-felt ideomotor pressure, grandiose ideas, hypomanic
affect on examination and hypomanic speech. As content-laden and emotional symptoms were excluded from the study, grandiosity and euphoria could not be considered as data. Decreased sleep was excluded because it reappeared in another category—depression.

All of the above symptoms appear in the early stages of amphetamine psychosis (Bell, 1965), together with the often noticed emotion of euphoria. Flight of ideas, together with euphoria, has been reported following inhalation of nitrous oxide. One patient, after inhalation of the gas, remarked that "my ideas succeeded one another with extreme rapidity; thoughts rushed like a torrent through my mind, as if their velocity had been suddenly accelerated by the bursting of a barrier which before had retained them" (Freedman, 1960, p.319).

Manic activities have recently been attributed to the heightened turnover of some of the bioamines, especially norepinephrine (Bunney, 1965; Schildkraut, 1965). The treatment of choice has accordingly become lithium, a compound which reduces the amount of norepinephrine available to the central nervous system. A metabolite of NE, MHPG, has been found elevated immediately prior to manic episodes (Deleon-Jones, Maas, Dikermanjain & Fawcett, 1973). cAMP has also been found elevated immediately prior to and after the "switch process" from depression to mania (Paul, Cramer & Bunney, 1971).

Damage to the frontal lobes has been found to generate "euphoria with peculiar indifference to the seriousness or indeed painful consequences of any situation" (Denny-Brown, 1951). That this might be either a generalized release in frontal areas, or
possibly a subcortical phenomena, is hinted at by Penfield, who noted that the euphoric, energetic prodroma of epileptic seizures are "rarely encountered in patients with focal cortical seizures" (Penfield, 1955, p.35).

Unit 2: Increased attribution of meaning

1. Increased sense of significance

Everything [objects, sounds, events, etc.] took on special significance to me.

(Elizabeth in Bowers, 1974, p.143)

I was impressed by the most routine traffic direction, seeing the tenderly guiding hand of Providence in 'slow down, bad curve ahead' and 'turn left for the Holland Tunnel.' (Brown, 1944)

2. Flash of insight

...an overwhelming conviction that I had discovered the secrets of the universe. (Anon, 1955, in Kaplan, p.94)

Now, like the moment in doing a jig-saw puzzle when different sections link up together, events in my own life seemed to combine with others into a larger picture. (Coate, 1965, p.96)

This heightened sense of significance may attach to persons and objects in one's perceptual field or to an overall evaluation of "life's meaning." Angrist (1974) noticed a similar symptom in amphetamine psychosis, and wrote of one of his patients that "He then began to feel that everything had begun to take on enormous significance."

The flash of insight, like the flight of ideas, has been noticed in the literature on anaesthesia. Kolers (1964) remarks that after inhalation persons often report a sense of insight,
taking the form usually of a sentence or two containing the secret of the universe.

Unit 3: Premonition of change

...conscious that some terrible calamity was impending (Beers, 1907, p.13)

I began by degrees to get a sense that some great disaster was impending. (Morag Coate, 1965, p.29)

The premonition of disaster matches the "foreboding" symptom mentioned by Jackson (1884), Stevens (1957) and Sakel (1958) as occurring in their epileptic patients. Honig (1972), who worked with both epileptic and schizophrenic patients, noticed its occurrence in both groups. He writes, "Most patients recall this fear of impending doom as a feeling of horror. This same feeling is described by patients as they fall into psychosis" (p.251). The symptom was also elicited in brain stimulation by Schimaiyan (1949), who stimulated the cingulate cortex.

Unit 4: Arousal of the sympathetic nervous system

1. Increased heart rate

2. Increased blood supply to the head

The blood seemed carried to my brain in such quantities that the skull was too small to contain the brain enclosed within. (Reid's patient, in Landis, p.49)

3. Headaches, usually band-like

My head feels like a tight bandage was tied around it. (Hughes patient, in Landis, p.310)

4. Hyperthermia, or sudden vascillations in temperature

I'd feel unbearably hot and sweaty and Simon would say he felt cold. Ten minutes later the situation
would reverse. (Vonnegut, p.105)

5. General ear noises (tinnitus)

There is a terrible ringing and popping in my head, like a thousand insects at a distance. (Hughes' patient, in Landis, p.310)

...a faint but insistent ringing in his ears. (Nolan, in Landis, p.192)

6. Vertigo and nausea

I am full of vertigo with an increasing noise in my ears. (Fitzgerald in Milford, p.216)

The above symptoms are signs of discharge of the sympathetic nervous system, a system responsive to alarm and stress, and regulated by the hypothalamus and cingulate cortex (Truex & Carpenter, 1969). Firing of the sympathetic nervous system alters the circulation, providing more blood to the brain and muscles, and less to skin and internal organs. Excessive blood supply to the head is most probably related to the band-like headaches, the "pulsing behind the eyes" often mentioned by patients, and the ear sounds and nausea, as these same symptoms are experienced by persons with high blood pressure.

On the other hand, several of the symptoms, general auditory phenomena and vertigo, may also be elicited centrally, by stimulation of Heschl's area on the temporal lobe, and the immediately adjacent regions. For example, Penfield reports a case of focal temporal lobe epilepsy in which the aura was "sounds above his head and chirping birds" (Penfield, 1955, p.138). Schreber (1902), among other patients, reported "bird sounds," and he, like others, commented on the generally high-pitched tone of most of the sounds.
Some evidence for increased sympathetic activity in early psychosis has been provided by Rosenblatt and Leighton (1973), who found norepinephrine, the post-ganglionic transmitter of the sympathetic system, significantly elevated in the sympathetic neurons of manic and acute schizophrenic patients. This may be seen as one result of an intrinsic catecholamine imbalance, or as a natural response to the emergencies of psychosis and hospitalization.

The above symptoms have been noted as "early" symptoms in psychosis, epilepsy and amphetamine psychosis. Hunterhuber (1975) considered headaches to be a crucial sign of incipient psychosis. Headaches have also been noticed as precursors to murderous attacks (Malmquist, 1975) and to epileptic seizures (Stevens, 1957; Sakel, 1958). Tinnitus, together with other autonomic changes, has been noticed as prodroma to epileptic seizures (Stevens, 1957).

Unit 5: Complex auditory anomalies

1. Thoughts aloud
   One of the pursuers repeated my thoughts aloud verbatim. (White in Kaplan, p.134)

2. Articulated voices
   ...stilted unrelated phrases repeating 'and we shall see' or 'yes Miss.' (Sechehaye, 1951)

3. Music
   I heard that song 'Ramona' being sung by all my relations. (Fraser's patient #3, 1940, p.147)
These articulated sounds, once begun, tend to recur in variant forms throughout the psychosis. A preliminary reading of the case histories suggested a sequence to auditory events: first unformed sounds, then one's own thoughts, finally voices, and more rarely, music.

Penfield (1954) was able to elicit the more complex, "memory-based" auditory hallucinations by stimulating temporal regions outside the primary auditory receiving area.¹

Unit 6: Fight or flight

1. Attack on oneself or another person or object

I am a slightly built fellow but I damn near tore that motel apart with my bare hands and it took about five state police to subdue me. (Massoon, in Exploring madness, 1973)

2. Flight

I tore through the streets acting out the bitter rot of a world full of frustration. (Krim in Kaplan, 1970, p.63)

I was forced by voices to walk miles and miles about the city until my feet were blistered. (McDonald in Kaplan, p.175)

¹It is hard to distinguish voices derived from direct stimulation of brain areas and those which may be interpretations of more primitive sounds. Bleuler (1911, p.100) suggests as much: Sometimes the voices are localized in one side only. After, but not always, this phenomenon may be caused by a diseased condition of the ear so that an illusionary interpretation of ear buzzing or ringing may be involved.
3. Nudity

All at once the command came - 'Take off your clothes and walk.' With this I awoke. Without hesitation I sat up and took off my clothes. (Clark, 1946, p.468)

I took off my terrestrial garments and scattered them about me. (Nerval, 1957, p.120)

4. Loss of memory for previous episode

I'd come to myself from time to time and realize that I was walking, half-stumbling through the woods. (Vonnegut, p.84)

Stevens (1957), in examining temporal lobe epilepsy, noted that all of the above symptoms might occur prior to generalized seizures, and that they were often closely associated. These fight and flight behaviors, as well as the nudity, have been subsumed under "epileptic automatisms," behaviors divorced from conscious control and for which there is typically amnesia (Currie, 1971). Stevens (1957) reports fear sensations as preceding disrobing attacks and "running fits" (or "epilepsia cursiva", as it was called in the seventeenth century: Penfield & Jasper, 1955), and that "there was total amnesia for the event as is the rule for psychomotor automatisms" (p.234). Stevens notes further the correlation of euphoria and frontal lobe foci, and fear and discomfort with temporal lobe disabilities, "suggesting that more of the substance of the brain in this region /temporal/ is assigned to experience relatively unpleasant or preparatory to primitive defense" (p.234).
Mark and Erwin (1970, p. 98) report a case of a young girl with EEG spiking over the temporal lobe area. This patient had "racing spells" which "often took her into dangerous neighborhoods where she would come out of her fugue-like state to find herself helpless, alone and confused."

Stevens remarks that the "procurvise or running fits" have been paired with disrobing in primitive cultures. She may have had in mind the Phillipine peoples, who have developed a lore about persons who "run amok," attacking and often murdering, disrobing, exposing themselves and "claiming" amnesia (Burton-Bradley, 1975). Examples from other cultures and other times in history closely match this picture. Chrétien de Troyes, for instance, in the 12th century, described a knight who "felt a storm rise up in his head [see Unit 47, and stripped off his clothes, running away from the castle to live as an animal in the woods" (Neaman, 1975). In the 19th century a man was reported feeling sick, paranoid, and "was seen coming out of his house stark naked, and in this condition he walked rapidly down the road, throwing up his arms and making a wild howling sound. Within the day he had murdered a passerby on the road" (Ray, 1851, p. 315). As this writer has encountered three patients who, in the onset of their psychosis, disrobed and went into flight, it might be suggested that this is not a rare collection of symptoms.

There is a tantalizing parallel between the above symptoms and the clinical picture of the "fugue" state in which a person flees his life situation, and maintains, for variable periods of time, amnesia for his previous existence.
The anatomical substrate of these behaviors appears to be quite extensive, ranging from the temporal lobe down through its many subcortical limbic connections. In a review of the anatomical substrate of fear, Gray (1971) points out that fight, flight, or passive avoidance behaviors may be elicited by stimulation in a region which passes from the amygdala down the stria terminalis to the ventromedial hypothalamus and on to the central gray of the midbrain. The hippocampus may be involved in the associated amnesia, as it has not only been implicated in the setting down of short-term memory traces into long-term memory, but is also located immediately beneath the temporal lobe.

Unit 7: Loss of voluntary postural control

1. Compulsive posturing

The spirit seemed to light on my pillow by my right ear, and to command my body. I was placed in a fatiguing attitude, resting on my feet, my knees drawn up and on my head, and made to swing my body from side to side without ceasing. (Perceval, 1840, p.29)

He, my pursuer, likes to hold my limbs in fixed positions, or to keep them still when they are about to be moved. (Anon, 1917, p.227)

2. Dysautomatization of motor control

Somewhere hereabouts the idea got about that I could not do anything except when told to do it, in detail. I couldn't walk unless told to do it, if merely told to walk. I had to be told to lift my leg, put it forward and down, lift up my right leg... (Clark, p.469)

One foot in front of the other, step two follows step one. Somehow, I got dressed. (Vonnegut, p.85)
This unit comprises two kinds of motor difficulties, both experienced as being outside one's "will." In the first category, repetitious or rigid postures are maintained. In the second instance, all voluntary actions require special attention. (Excellent examples of this symptom may be found in Chapman, 1966). It seems possible that these lie together somewhere on a continuum, with the uncoordination frequently mentioned as an early onset symptom, marking the beginning, and catatonic stupor the end state.

Dysautomatization phenomena have been reported to coincide with lesions of the frontal lobe (Ingvar & Franzeh, 1973). Cataleptic postures, on the other hand, have been elicited through stimulation of the caudate (Myers, 1864), and the special cataleptic position of limb extension with trunk rigidity has been reported following stimulation of the midbrain (Penfield & Jaspers, 1955).^2

Unit 8: Odor

A very thick sweet odor, like the last scent of the totally decayed dead. (Courson, p.8)
...a disagreeable though sweet smell. (Anon, 1850)
It smells like ether, it smells like death.
(Bender's patient)

Two approaches have been taken in the study of this particular symptom. Some researchers, including Stein and Wise (1971), suggest that a biochemical change takes place in the sweat of

---

^2This posture could be one of the many symptoms lending itself to the common Christ-delusion.
psychotic patients. Others maintain the perception of an odor is an olfactory hallucination, similar in kind to those found following stimulation of the uncus (Penfield, 1955) and to those reported in temporal lobe and ulcinate epilepsy. Truex and Carpenter (1969, p.527) report:

Olfactory 'hallucinations' frequently are a consequence of lesions involving or irritating the parahippocampal gyrus, the uncus or adjoining areas around the amygadaloid nuclear complex. The olfactory sensations which these patients experience usually are described as disagreeable in character and may precede a generalized convulsion. Such seizures are referred to as 'ulcinate fits.'

It is remarkable that the odor is characteristically described as heavy and sweet though disagreeable, reminiscent of burning rubber, flesh, sulphur or ether, but never as sour, sharp, like lemons, pine or salt.

Unit 9: Complex visual losses

1. Loss of depth

...with no depth, but flatly, like a picture.
(Greenberg, p.20)

2. Loss of size constancy

Standing at the other end of the rope, she had grown smaller, but the nearer we approached each other, the taller she grew, the more she swelled in size. (Sechehaye, p.20)

3. Loss of motion constancy

Their movements were to my sick eyes like those of mechanical toys...artificial, automatic, mesmerized. (Dearborn, 1950, p.91)
4. Loss of shape

Their forms appears to contrast and dilate. (Coursen, p.8)

5. Color change

Suddenly last Spring I began to see all red while I worked or I saw no colors. (Fitzgerald, in Milford, p.215)

6. Changes in brightness

When I awoke...everything seemed to be dark. I believe in reality it was quite daylight. (Anon, 1932)

In these symptoms, the brain appears to be no longer making those detailed computations necessary for any continuity of movement or shape or position, nor making the calculations needed to determine depth and size of objects. The more complex perceptions may be a memorial deficit and/or may also spring from a disturbance of the occipital-temporal-parietal regions where visual perceptions are combined with input from other sources.

Color changes may be induced by electrical stimulation of the visual cortex (Penfield, 1957). Similar changes have been found in epilepsy. Jackson (1884) reported a case of a woman who had "color fits," during which time her visual field took on altered hues. Zelda Fitzgerald, hospitalized for schizophrenia, described her color changes as "film colors, in which the color was neither diffused through the object nor was it exactly matched to the outline of the object." (In Mitford, 1970, p.205).
Unit 10: Decreased reactivity, "Depression"

1. Excessive fatigue, psychomotor retardation
   
   ...a dreadful torpor and lethargy growing on me. (Perceval, p.43)

2. Anaesthesia
   
   Jane, you don't even give a twinge when I put in the stitches. (Hillyer)

3. Diminished taste
   
   I cracked open a peanut from the ten-cent bag I had bought to feed the pigeons and ate it.
   It tasted dead, like old tree bark. (Plath, p.144)

These symptoms comprise the non-affective components of depression. Beck (1967) includes fatigability, sleep disturbance, and loss of appetite as key symptoms in neurotic depression, all exacerbated in psychotic depression. Clinical workers have also noticed that pain and sensory information is also notably reduced in depression (Hall & Stride, 1954).

Recent work on neurotransmitters suggests that lowered levels of the biogenic amines may provide the biochemical substrate for these symptoms (Bunney, 1965; Coppen, 1967; Van Praag, 1970; Schildkraut, 1965; Korf & Schut, 1973). Lowered serotonin, for example, generates diminished responsibility to electric shock, and to pain (Lytle, et al., 1975). Bilateral lesions of the catecholamine tracts by Ungerstedt (1973), lowering available norepinephrine and dopamine, produced aphagia, adipsia as well as possible signs of pain and touch insensitivity.
Unit 11: Primitive sensory and motor signs

1. Electric shock sensation
   
   A sudden feeling of a strong current running through me. (Coate, 1965, p. 31)

2. Acute pains
   
   I was seized by the most violent paroxysms of pain which racked every nerve in my body. (Reid's patient)

3. Muscle spasms
   
   First the muscles of one arm would twitch, then the other. (White in Kaplan, p. 141)

Taken together these symptoms include the most primitive perceptions of responses available to animals. They are the raw requisites for survival. They are represented in the sensory and motor regions along the central gyrus. Stimulation of this region evokes tingling, electric sensations and muscle spasms (Penfield, 1955).

Unit 12: Visual hallucinations

1. Geometric arrangements
   
   a. Dots
      
      ...a swarm of insect-like points of lights and darkness. (Lilly, 1972)

   b. Circle
      
      Immense circles took shape in infinity. (Nerval, 1855, p. 119)

   c. Line
      
      ...a scythe-like ray of steely blue light. (Davidson, 1912, p. 87)
2. Simple figures
   a. an object
   A spray of capital letters. (Cecil, in Kaplan, p.215)
   b. a person
   A form like that of a deceased person, a phantasm. (Ferriar in Landis, p.114)
   c. lilliputian imagery
   ...a hundred little men about 6" high...
   (Leroy in Landis, p.18)

3. Complex figures
   a. general scenes
   I found myself standing somewhere on a pebbly beach at dawn. (Jefferson, 1947, p.217)

Unit 13: Hallucinations of touch and position

   touch and position
   That was the eeriest sensation of all--knowing that my hands were tied securely in a strait-jacket, yet feeling them free and flung back over my head. (Jefferson, p.220)

Unit 14: Loss of consciousness

I went out like a gutted candle. I 'came to' a third time in a different place. (Hillyer, 1926, p.73)

I remember trying to get the saddle over him [a horse], and the next things I felt was water dashed on my head by my mothers' old gardener in an effort to revive me. I had fainted for
a little over a quarter of an hour. (Custance, Adventures, 1954, p. 18)

Derivation of the Sequence

The units were next arranged in order, to form a Master Sequence against which one group of the autobiographies (Group B) might be tested. The following sets of readings served as resources for the derivation of the sequence:

1. Group A of the autobiographies
2. Clinical research
3. Literature on epilepsy, especially temporal lobe epilepsy
4. Research on amphetamine psychosis

As the derivation of the order was a complex process, involving the interweaving of suggestions from the above four sources, the following sections will describe the separate contributions of each source.

Group A of the Autobiographies

Group A of the autobiographies was used to derive the first approximation of the order presented in this section. This was done in several ways, one by deriving an order based on several of the accounts, testing it against others, modifying it and testing it against yet others; and the other way by giving special weight to the most clearly presented "classics" in the literature on psychosis.

The twenty-five recitals in Group A were scored by marking down the temporal order of the symptoms detailed in the last
section and displaying the transitions between symptoms on a transition matrix. A thorough discussion of this procedure may be found on pp. 63-65. A number of different matrices were attempted, the final one being that presented in Figure 1. This figure represents all of the transitions among all of the symptoms described by the 25 authors, one "run" per author. Although the data shows considerable scatter, there is a clustering of points just above the diagonal, as would be expected. The data was then looked at in another way—only the first appearance of each symptom was scored, and then only the first appearance of each unit. A look at Figures 2 and 3 should persuade the reader that the noise has been considerably reduced; the pattern is far more visible.

Marking only the first appearance of each symptom, or unit, is an important procedure, not only because it reduces the scatter, but also because it may be more sensitive to the progression of the disorder. Certain symptoms, especially auditory hallucinations, appear to persist for a long while after becoming established. This persistence of certain symptoms while new ones make their appearance is consonant with the interpretation of psychosis as a progressive disturbance, most probably involving the catecholamines (Anokhima, 1968).

The sequence in the Group A autobiographies appears to have a turn-around, reversing its order following its achievement of the most severe stages. It would appear in the following way: a person who experiences visual hallucinations before losing consciousness might reexperience them "coming to." While one
Figure 1: Transition matrix for all symptoms of study mentioned by authors of Group A, one "run" per author. Symptoms listed along the vertical represent those from which transitions were made, those along the horizontal, those to which transitions were made,
Figure 2: Transition matrix of the first appearance of symptoms in the Group A autobiographies. All repeats have been omitted.
Figure 3: Transition matrix of the first appearance of symptom units in the Group A autobiographies.
patient might attack an attendant, then smell a distinct odor, pass out, another might smell the odor, pass out, then see light flashes, smell the odor again, and possibly attack someone. The order is maintained, but is reversed. Marking the first appearance of each symptom or unit, however, meant that data relevant to the turn-around would probably be lost.

Analysis of the data of Group A of the autobiographies necessitated the gathering together of some of the units into nine "Stages". This procedure will be explained in some detail.

Creation of the Stages

The units were developed because certain sets of symptoms appeared to have a logical relationship amongst themselves, and because the symptoms appeared to occur somewhat simultaneously in Group A of the autobiographies. Amalgamating symptoms into units limited the detail possible, but made a statistical treatment more feasible.

The preliminary data analysis, however, of the Group A autobiographies indicated that the units were still not sufficiently broad for statistical work, given the limited amount of data available for this study. It was necessary to reduce the amount of detail still further by collapsing some of the units together. While this might be approached in a number of ways, the considerations here were the evidence of the preliminary analysis of Group A and the suggestions from clinicians and biologists.

The 14 units were collapsed into nine stages as illustrated below:
STAGE I

Unit 1: "Mania"
Unit 3: Premonition of change

STAGE II

Unit 2: Increased attribution of meaning

STAGE III

Unit 4: Arousal
Unit 5: Complex auditory anomalies

STAGE IV

Unit 6: Fight and flight
Unit 7: Compulsive posture

STAGE V

Unit 9: Complex visual losses

STAGE VI

Unit 10: Depression

STAGE VII

Unit 8: Olfactory hallucinations
Unit 11: Sensory-motor signs

STAGE VIII

Unit 12: Visual hallucinations
Unit 13: Hallucinations of touch, position

STAGE IX

Unit 14: Loss of consciousness

Although the combinations were partially based on a preliminary analysis of data from the Group A autobiographies, they were supported by additional evidence.
STAGE I (the combination of Unit 1: Heightened activity, "mania", with Unit 3: Premonition of change) was supported by Bower's study (1974) of the first stages of schizophrenia (further referenced on p. 52) in which he notes that a sense that something is about to happen coincides with racing thoughts, heightened sexuality and other signs of "mania".

STAGE III (the combination of Unit 4: Arousal, with Unit 5: Complex auditory anomalies) is supported by this evidence: nausea and vertigo have been found to coincide with tinnitus in epilepsy (Sakel, 1958; Ray, 1951) and in high blood pressure. Further, tinnitus, or generalized ear noises, has been observed to precede the development of hallucinations of voices (Hoffer & Osmond, 1966).

STAGE IV (the combination of Unit 6: Fight and flight, and Unit 7: Compulsive posture) was suggested by the literature on catalepsy, which notes that cataleptic patients appear to be "holding themselves in" for fear of violent outbreaks, and that immobility alternates with periods of agitation and attack (e.g. Fromm-Reichman, 1959, p. 201). In addition, in the literature on animal behavior, the concepts include "fight, flight, and freeze" in summarizing important survival behaviors.

STAGE VII (the combination of Unit 8: Olfactory hallucinations, with Unit 11: Sensory-motor signs) derives its main support from the data of the Group A autobiographies, but may also be seen to have a certain logical justice, as olfaction, like the symptoms contained in sensory-motor signs, is one of the most primitive modalities available in the animal kingdom.
STAGE VIII (the combination of Unit 12: Visual hallucinations, and Unit 13: Hallucinations of touch and position) is supported by the work of Ellinwood (1967), who found that tactile hallucinations in amphetamine psychosis were always incorporated into visual hallucinations.

A "stage" analysis of the Group A autobiographical data may be found on Figure 4, p.50.

The "Classics" in the Literature of Psychosis

Highlighting the pattern revealed in the autobiographies are a group of "classics", especially rich accounts which present a variety of symptoms in relatively unambiguous order. These include Nerval's *Aurelia* (1855), Beer's *A mind that found itself* (1907), Anonymous' *Maniac* (1932), Jefferson's *These are my sisters* (1947), Boisen's *Out of the depths* (1960) and Green's *I never promised you a rose garden* (1964). Contributions of these writers to the sequence, in the sequence's stage format, is found on Figure 5, p.51.

Clinical Recommendations

There is a paucity of data from clinical sources, but what has been found support the sequence suggested. Bowers (1974) describes the following stages in the "experiential progression of acute psychosis": first, a period of impasse, with mood swings; second, a stage of "heightened awareness"; third, a stage in which meanings become especially strong and are attached to the self; fourth, the dissolution of the identity. His clearest contributions to this study are his descriptions of the second (Stage I
Figure 4: Transition matrix of the first appearance of stages in the Group A autobiographies
Figure 5: Transition matrix of stages in eight "classic" autobiographies.
in this study), and third stage (Stage II).

He describes his second stage (our Stage I) thus:

There is a feeling of inexpressible urgency. The need for sleep seems to lessen and insomnia often sets in unnoticed. There is a sense that something is about to happen [PREM]. Visual and auditory sensations may seem particularly acute. Thoughts and perceptions come faster than they can be assimilated [ITGT]. At such times individuals may feel that their minds have awakened, that they are functioning at a high level, or that their creative powers are enhanced. They may experience emotions with singular intensity and often are overcome with a sense of benevolence or overwhelming fear. Memories of childhood and long-forgotten emotions may surge into consciousness. Some patients report temporarily enhanced sexual feelings [ISEX]...There is frequently a heightened sense of self. (p.179)

His third stage (Stage II in this study):

The individual literally has the irrefutable cognitive experience that this or that object, person, event or transaction has meaning for him...The individual experiences the subsequent press for meaning [IMEA] as extraordinarily intense. Normal structures of what is logical, reasonable and probable fall before the onslaught of this state of increased input and disarticulated categories of relevance. (p.181)

In summary, Bowers suggests strongly that the units of mania and premonition immediately precede the unit of enhanced meaning.

Carlson and Goodwin (1973, p.223) studied the progression of symptoms in an acute manic episode, symptoms that span most of those included in this study. They describe three basic stages. Stage one presents a picture of what has traditionally been considered "mania": 
In all 20 patients, the initial phase of the manic episode was characterized by increased psychomotor activity which included increased initiation and rate of speech \( \text{ISPE} \), and increased physical activity. The accompanying mood was labile but euphoria predominated, although irritability became obvious when the patients' many demands were not instantly satisfied. The cognitive state during the initial stage was characterized by expansiveness, grandiosity and overconfidence. Thoughts were coherent though somewhat tangential. Also frequently observed during this stage were increased sexuality \( \text{ISEX} \) or sexual preoccupations, increased interest in religion, increased and inappropriate spending of money, increased smoking, telephone use, and letter writing \( \text{IWRI} \).

Their Stage two hints of movement to our Stage IV (Fight-flight-freeze):

During this period pressure of speech and psychomotor activity increased still further. Mood, although euphoric at times, was now more prominently characterized by increasing dysphoria and depression. The irritability observed initially had progressed to open hostility and anger, and the accompanying behavior was frequently assaultive. Racing thoughts progressed to definite flight-of-ideas with increasing disorganization of the cognitive state. (p.224)

In the third stage hallucinations appear:

...characterized by a desperate, panic-stricken hopeless state accompanied by frenzied and frequently even more bizarre psychomotor activity. Thought processes that earlier had been only difficult to follow now became incoherent and a definite loosening of associations was often described. Delusions were bizarre and ideosyncratic: hallucinations, visual and auditory, were present in six patients; disorientation to time and place was observed. (p.224)
Another clinical contribution to the sequence is the work of McGlashan and Carpenter (1975) who found a "post-psychotic depression" following primary symptoms in at least 50% of their patients.

Angyal (1940, pp.152-159), in a thoroughly presented case history of a catatonic patient, describes his patient going through the following stages: He awoke with a flash of insight "with the conviction he 'knew for a fact' that he was selected to serve as a member of the FBI." Then everything began to take on meaning and significance and to be related to this idea... Soon after admission the patient began to experience auditory hallucinations." Later he began to assume compulsive posture. "The idea of the tremendous significance of every little movement coupled with the idea of living in a new world the meaning of which was about to be disclosed to him, led B. into almost complete inactivity. He would now stand motionless in the same spot for hours...He now habitually stood in a stereotyped posture, with his head bent forward, watching his feet." After going through an extensive time of being unable to eat, and misidentifying fellow inmates, he tried to kill himself. Next came visual losses--"The objects of the surrounding appeared to be far away--a short section of the road looked as if it stretched for miles. Then again, everything looked extremely small--the lake 'did not seem any larger than the top of this desk'" (Angyal, 1940). At this point the patient begins to recover. It might be noticed that the patient did not experience the olfactory or visual hallucinations typical of "later" stages. He experienced Stages
2 (Increased meaning), 3 (Auditory), 4 (Attack-self-attack and compulsive posture) and 5 (Visual losses).

**Epilepsy**

Although the relationship of epilepsy to psychosis is still problematic (Slater, Glithero & Beard, 1963), the overlap of symptoms behooves us to ask if there is any order to the epileptic signs. The basic pattern of a Grand Mal convulsion is fairly straightforward. When a "focal" seizure begins, usually one of the symptoms appears as a warning or "aura", often signaling the site of a specific lesion. The aura is followed by convulsions, loss of consciousness and, subsequently, depression or "stertorous sleep". Loss of consciousness occurs when the seizure reaches the thalamus or lower brain stem. Micturation, defecation and salivation appear in close temporal proximity to loss of consciousness at the end of the seizure (Mayer-Gross, 1960). While this doesn't say much about the detailed relationship of most of the symptoms, it does present a basic form consonant with the form of the Master Sequence. It is as though the Grand Mal seizure represents the swiftest passage through the Master Sequence, passing over the intermediate stages.

The course and tempo of temporal lobe epilepsy is different, slower, with more than one symptom preceding generalized convolution. Stevens (1958) begins her study of the "march" of temporal lobe epilepsy with a quote from the grand master of epilepsy research, John Hughlings Jackson:

> I doubt that there is some order throughout, from the warning to the end of the post-paroxymal stage.

(Jackson, 1880)
Order in which the nine stages appear for the first time in the 56 classics of autobiographies of psychosis, and in several clinical reports.

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( ) Action considered but not taken
and she continues (Stevens, 1958, p.227):

With these words John Hughlings Jackson in 1880 discussed the results of his exhaustive studies of epileptic events whose symptoms comprised a number or a series of consecutive or simultaneous alternations of thought, emotion, sensation, and behavior. Thus he indicated his belief that the varied manifestations of an epileptic attack, whether "dreamy state", ulcinate fit, hallucination, or complete automatism, were consistent within the framework of the attack, if only the framework itself could be discerned.

Jackson never succeeded in isolating a sequence, and Stevens was not much more successful. Her work was limited by informal methodology, and a failure to report 10 of her 40 subjects. She has, nonetheless, made suggestions as to a "series of typical marches", the most important of which was experienced by 10 of her 40 temporal lobe epilepsy subjects. This sequence begins with epigastric distress, fear and paranoia, and odor (Unit 8), hallucinations (unspecified), motor automatisms (?), and loss of consciousness (Unit 14). Another isolated sequence shared by several subjects begins with sensations of electricity (Unit 11), followed by visual hallucinations (Unit 12), and ending in attack (Unit 6) and seizure (Unit 14). Although these "marches" do not correspond very closely to the Master Sequence, as proposed, scrutiny of her data does gather support for this sequence. The first symptoms of her subjects were most often representative of Units 1-5, and the second symptoms of Units 6-13.

In cases reported in the literature of "epileptic violence", headaches, vertigo and tinnitus (Unit 4) precede auditory hallucinations (Unit 5) and these in turn are followed by paranoia, flight
and attack (Unit 6) (Ray, 1951). As the persons are usually apprehended at this point, the rest of the sequence is not reported.

Cases of "inter-ictal" psychosis also support the Master Sequence. Waxman and Geschwind (1975) report a case in which epigastric distress precedes fear, then visual hallucinations (Unit 12) and loss of consciousness (Unit 14). Another case begins with racing thoughts and hypergraphia (Unit 1), decreased sexuality, then odor (Unit 8), visual hallucinations (Unit 12) and seizures (Unit 14). Diethelm (1950) reports a sequence of epigastric distress, lassitude (Unit 10?), visual loss (Unit 9), tingling and sensations of electricity (Unit 11) and visual hallucinations (Unit 12).

The contributions of the various writers on epilepsy are displayed on p.61.

Amphetamine Psychosis

There is yet no systematic study of the progression of symptoms in amphetamine psychosis, although evidence for a sequence is found throughout the literature. Seavers (1968), in an overview of amphetamine abuse, reports that early symptoms are euphoria, hyperactivity and appetite loss, and the next symptoms to appear include volubility and paranoia. Higher doses, he reports, cause hallucinations, even convulsions. These are general impressions, but Ellinwood presents several instances of homicide due to amphetamine psychosis, and presents them in some detail. Case one, the most thoroughly described, begins with paranoia, preceded to auditory hallucinations (Unit 5), Odor (Unit 8), loss
of consciousness (Unit 14) and then attack (Unit 6). Case two begins with decreased sleep and proceeds from paranoia to attack, as does Case three.

Experimentally-induced amphetamine psychosis provides us with greater detail. Initial responses to either a large single dose to small doses administered cumulatively (the similarity of the end-states of these two processes has been noted by Connell (1958) and Bell (1965) include euphoria, hyperactivity, anorexia, flight of ideas and press of speech (Unit 1) as well as decreased ambivalence and heightened curiosity (Griffith, Cavenaugh & Oates, 1972; Bell, 1973; Ellinwood, 1967; Angrist et al., 1974). The next set of symptoms include withdrawal, the experience of insight (Unit 2), heightened blood pressure including headaches, tachycardia and temperature changes (Unit 4), auditory hallucinations and paranoia (Griffith et al., 1972). The same progression from simple sounds (Unit 4) to voices (Unit 5) noted on p. 31 as occurring in the autobiographies, has been observed in amphetamine psychosis. Ellinwood (1967) remarks:

Auditory hallucinations begin with the patient's perception of simple noises or voices which whispered or called his name...In more advanced psychoses, the patient conversed with them.

The largest dosages, or prolonged administration, results in olfactory (Unit 8), visual (Unit 12) and tactile (Unit 13) hallucinations (Connell, 1958; Ellinwood, 1967; Griffith et al., 1972). Tactile hallucinations, whenever they appeared, were always incorporated into visual hallucinations (Ellinwood, 1967).

The range of individual responsiveness to particular doses
of amphetamines precludes any possibility of making a dose-to-symptom equation. A novice volunteer became psychotic after a cumulative dosage of 120 mg. d-amphetamine/48 hours (Griffith, et al., 1972) whereas an amphetamine addict became psychotic only after raising his intake to 1200 mg. amphetamine/24 hours (Ellinwood, 1967).

The above studies mention but do not include in temporal sequences the appearance of stereotyped movements (Unit 7), one of the most well-studied effects of amphetamine. Kramer (1974) who administered methamphetamine in high doses, gives us a clue: his progression began with euphoria, anorexia, and decreased sleep (correlates of Unit 1), paranoia and attack (Unit 6), compulsive behavior (Unit 7), "over-amping" (?), and death. This at least suggests that stereotypy follows fight and flight behaviors.

The contributions of the researchers on amphetamine psychosis to a temporal sequence are depicted on p.61.

The Master Sequence

The Master Sequence, based predominately on evidence from Group A of the autobiographies but gathering support from other areas, is displayed on p.62. The basic form, of a variety of "aura" symptoms such as hallucinations and hyper- or hypoactivity appearing before loss of consciousness, with the loss of consciousness followed in turn by a slight return of symptoms, and then by depression, appears to be shared by the epilepsies and by amphetamine psychosis we often find a rapid, saltatory progression down the sequence, moving, for example, from Stage I to Stage VII, while the cases of endogenous psychosis may move more gradually through separate stages.
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**Note:**

- **First appearance of stages in epilepsy and amphetamine psychosis.
- **Table 2**
FIGURE 6

Stages of the Psychotic Sequence

I. Mania and Premonition

II. Enhanced meaning

III. SNS and Auditory hallucinations

IV. Fight, flight and compulsive posture

V. Complex visual losses

VI. Depression

VII. Sensory-motor changes; odor

VIII. Hallucinations of vision, touch, position

IX. Loss of consciousness

Progression of the disorder
For finer resolution we go to the separate sources. The transition from Stage I: Mania, to Stage II: Heightened meaning is secured by the Group A data, the recommendation of Bowers (1964) and the cases of amphetamine psychosis. The transition from II: Meaning, to III: Arousal and auditory anomalies is only weakly supported, but was maintained as the alternative would be to eliminate Stage II altogether. Transitions made from Stage III: Arousal, to Stage IV: Fight, flight, posture, are powerfully in evidence in the autobiographies, although the next transition, from Stage IV: Fight, flight, posture, to Stage V: Visual losses is not. Many transitions from this stage (IV) appear to be made back to Stage III. The average "center of gravity" of recommendations for the stage still places this stage after IV. Stage V: Visual losses preceded both VI: Depression and VII: Sensory-motor/odor. Depression is more poorly represented in this study than sensory-motor phenomena, so its transitions were given more weight. The transition to visual hallucinations, Stage VIII, from sensory-motor, Stage VII, is one of the most firmly supported, both by the case histories of "endogenous psychosis" and by the cases of epilepsy. Loss of consciousness, Stage IX, is typically encountered more frequently in epilepsy, but is also supported by the "classics."

**Scoring**

The scoring of the symptoms proceeded in the following way: Each symptom was given a four letter code, and each symptom was recorded in order of its appearance. A sample of the scoring
procedure may be found in the Appendix.

Only one series of symptoms was recorded for each author. Because the accounts often included many such series, this procedure was adopted to equalize the contributions from each author. A series of symptoms or a "run" was selected for its informational value. So, although many of the runs were onset experiences, some were selected because they included the greatest number of symptoms. The beginning of a "run" was taken to be symptoms of Stage I whenever there was difficulty discerning initiation.

Difficult decisions had to be made as to what was metaphor in the accounts and what represented actual perceptual alterations. No one reported, for example, that size constancy suddenly stopped operating. Rather they might say that "Marie grew suddenly as large as a lion" or that "people looked as far away as ants." It was expected that such difficulties would inevitably increase the noise in the data, and increase the dependence on statistics to unveil the pattern.

Transition scores

The data were transcribed in the form of a series of symptoms, such as increasing sexuality (ISEX), premonition of change (PREM), compulsive posture (CPOS), and hallucination of music (HMUS). The data may be seen as a series of transitions, in this case from ISEX to PREM, from PREM to CPOS, and from CPOS to HMUS. Each transition was recorded on a transition matrix (see p. 66). The horizontal rows represent symptoms, or stages from which transitions are made, and the vertical columns symptoms or stages to which transitions arrive.
As the individual symptoms were placed in units and stages, the data may also be seen as a series of transitions between the first appearance of one unit to the first appearance of another unit, or from the first appearance of one stage to the first appearance of another stage. The starred score on the sample matrix on p.66 represents a transition made from stage three to stage four.

Analysis

The Master Sequence predicts that transitions are more likely to be made to the next units or stages down the line in the sequence, and also predicts a slight turn-around effect at the end of the sequence. To make the hypothesis more testable, a general rule was adopted that only transitions from one stage to either of the next two predicted stages, or units, would be considered to be within the predicted region. Although it would have been possible to test a strict version of the hypothesis, in which only a transition from one unit or stage to the next was predicted, it was felt that the data were likely to be too noisy to survive a strict test. The permissible transitions made under the "broad version" of this hypothesis are shown in the shaded regions of the transition matrix on p.65.

The chi-square and binomial tests

The hypothesized sequence predicts that a significantly greater number of scores would be found within the predicted region than would be the case if the sequence were randomly distributed. As a first test of the random distribution of the
Figure 7: The transition matrix with sample score.
stages, the chi-square test was done ($\alpha=.01$). The next test was the binomial ($\alpha=.05$) used to test the predictive value of each stage.

RESULTS

The data transition points from the Group B autobiographies are displayed in Figure 8 on p. 65. There is a grouping of scores immediately above the diagonal, as would be expected if parts of the sequence were meaningful. There was an unexpected scarcity of data for transitions from Stage IX. The chi-square test gave a value of 56.33. A value of 16.62 ($\alpha=.01$, one-tail test) was required for significance. The computations are displayed on p.65.

The binomial test results are presented in Table 7 on p.70. Four of the nine stage transitions proved significant: the transition from Stage I: Mania, to Stage II and III, Enhanced meaning and Arousal + Auditory hallucinations; from Stage III, Arousal and Auditory meaning to Stages IV and V, Fight, Flight and Posture and Complex Visual losses; from Stage V, Fight, Flight and Posture to Stages VI and VII, Depression and Sensory-Motor changes; and from Stage VII, Sensory-Motor changes to Stages VIII and IX, Hallucinations of Vision, Touch and Position and Loss of consciousness.

The data from the Group B autobiographies tended to emphasize the early stages rather than the latter, perhaps because many more were taken from the years after 1950 in which drug interventions were likely to be used. For this reason it was thought useful to
Figure 8: Transition matrix of stages in Group A data.
TABLE 6

The Chi-Square Computation

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</thead>
<tbody>
<tr>
<td>I</td>
<td>4.11</td>
<td>11</td>
<td>11.55</td>
</tr>
<tr>
<td>II</td>
<td>5.17</td>
<td>8</td>
<td>1.55</td>
</tr>
<tr>
<td>III</td>
<td>4.86</td>
<td>12</td>
<td>10.49</td>
</tr>
<tr>
<td>IV</td>
<td>2.23</td>
<td>4</td>
<td>1.40</td>
</tr>
<tr>
<td>V</td>
<td>2.04</td>
<td>9</td>
<td>23.75</td>
</tr>
<tr>
<td>VI</td>
<td>.78</td>
<td>2</td>
<td>1.91</td>
</tr>
<tr>
<td>VII</td>
<td>1.50</td>
<td>4</td>
<td>4.17</td>
</tr>
<tr>
<td>VIII</td>
<td>.86</td>
<td>2</td>
<td>1.51</td>
</tr>
<tr>
<td>IX</td>
<td>(excluded for lack of data)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>56.33</td>
</tr>
</tbody>
</table>
TABLE 7

Results of the Binomial Tests for Group B Stages

<table>
<thead>
<tr>
<th>Stage</th>
<th>n</th>
<th>k</th>
<th>p</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>15</td>
<td>11</td>
<td>.27</td>
<td>.00024*</td>
</tr>
<tr>
<td>Stage II</td>
<td>14</td>
<td>8</td>
<td>.37</td>
<td>.10</td>
</tr>
<tr>
<td>Stage III</td>
<td>17</td>
<td>12</td>
<td>.285</td>
<td>.0004*</td>
</tr>
<tr>
<td>Stage IV</td>
<td>11</td>
<td>4</td>
<td>.205</td>
<td>.17</td>
</tr>
<tr>
<td>Stage V</td>
<td>9</td>
<td>9</td>
<td>.23</td>
<td>.0000018*</td>
</tr>
<tr>
<td>Stage VI</td>
<td>3</td>
<td>2</td>
<td>.26</td>
<td>.17</td>
</tr>
<tr>
<td>Stage VII</td>
<td>9</td>
<td>4</td>
<td>.163</td>
<td>.004*</td>
</tr>
<tr>
<td>Stage VIII</td>
<td>6</td>
<td>2</td>
<td>.143</td>
<td>.21</td>
</tr>
<tr>
<td>Stage IX</td>
<td></td>
<td></td>
<td>.26</td>
<td></td>
</tr>
</tbody>
</table>

* = significant at the set \( \alpha \) level of .05

n = number of transitions made from a given stage

k = number of transitions made from a given stage to the predicted stages, the number "correct"

p = the probability of transitions being made to the predicted region under \( H_0 \), the hypothesis that the transitions are random. This is an empirical number, determined by dividing the number of transitions made to the predicted stages by the total number of recorded transitions.

r = the probability of getting the actual number of predicted transitions, k, under the null hypothesis (\( H_0 \)).
pool the data from both Group A and Group B of the autobiographies. It should be clear that this pooling represents a poorer test of the theory, but rather signifies more of a "best fit" to all the data. The data points for the combined groups are displayed in Figures 9 and 10 on pp. 72-73. With the increase of data, greater resolution was thought likely, and an analysis of the units, as well as of the data, was carried out. The results of the binomial test done on the combined data are displayed on p. 74. Seven of the nine stages are now significant, with one stage prediction containing too few data points (Stage IX) to be useful, and another stage, IV, Fight, Flight and Posture, evidencing a number of returns to the previous stage. The unit analysis makes clear that these returns were largely from the Fight-Flight stage to Arousal, a result which should have been predicted as the survival activities should have an additive effect on any arousal already experienced.

In the unit analysis, nine of the fourteen unit transitions were significant. The analyses are displayed on p. 75. Now Unit 1: Mania significantly predicts to Units 2 and 3, Increased meaning and Premonition; Unit 4: Arousal predicts significantly Units 5 and 6, Auditory hallucinations and Fight and Flight, Unit 5: Auditory hallucinations predicts to Units 6 and 7, Fight and Flight; and loss of postural control, Unit 6: Fight and Flight predicts to Loss of Postural Control and Olfactory hallucinations; Unit 8: Olfactory hallucinations, predicts to Units 9 and 10, Visual losses and Depression; Unit 9: Visual losses, predicts to Units 11 and 12, Sensory-motor signs and Visual hallucinations,
Figure 9: Transition matrix of the first appearance of symptom units in the combined A and B groups.
Figure 10: Transition matrix of the first appearance of symptom stages of the combined A and B groups.
<table>
<thead>
<tr>
<th>Stage</th>
<th>n</th>
<th>k</th>
<th>p</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>25</td>
<td>17</td>
<td>.246</td>
<td>.0000005*</td>
</tr>
<tr>
<td>Stage II</td>
<td>18</td>
<td>11</td>
<td>.367</td>
<td>.03*</td>
</tr>
<tr>
<td>Stage III</td>
<td>40</td>
<td>31</td>
<td>.28</td>
<td>.0000000001*</td>
</tr>
<tr>
<td>Stage IV</td>
<td>28</td>
<td>8</td>
<td>.18</td>
<td>.116</td>
</tr>
<tr>
<td>Stage V</td>
<td>21</td>
<td>17</td>
<td>.24</td>
<td>.000000006*</td>
</tr>
<tr>
<td>Stage VI</td>
<td>10</td>
<td>8</td>
<td>.30</td>
<td>.0015*</td>
</tr>
<tr>
<td>Stage VII</td>
<td>24</td>
<td>16</td>
<td>.21</td>
<td>.0000018*</td>
</tr>
<tr>
<td>Stage VIII</td>
<td>14</td>
<td>6</td>
<td>.21</td>
<td>.054*</td>
</tr>
<tr>
<td>Stage IX</td>
<td>2</td>
<td>2</td>
<td>.30</td>
<td>.09</td>
</tr>
</tbody>
</table>
TABLE 9

Results of the Binomial tests for Group A and B units

<table>
<thead>
<tr>
<th>Unit</th>
<th>n</th>
<th>k</th>
<th>p</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>20</td>
<td>12</td>
<td>.091</td>
<td>.000000002*</td>
</tr>
<tr>
<td>Unit 2</td>
<td>13</td>
<td>4</td>
<td>.146</td>
<td>.11</td>
</tr>
<tr>
<td>Unit 3</td>
<td>18</td>
<td>5</td>
<td>.183</td>
<td>.22</td>
</tr>
<tr>
<td>Unit 4</td>
<td>26</td>
<td>15</td>
<td>.236</td>
<td>.00019*</td>
</tr>
<tr>
<td>Unit 5</td>
<td>27</td>
<td>16</td>
<td>.195</td>
<td>.0000006*</td>
</tr>
<tr>
<td>Unit 6</td>
<td>25</td>
<td>7</td>
<td>.141</td>
<td>.0053*</td>
</tr>
<tr>
<td>Unit 7</td>
<td>12</td>
<td>4</td>
<td>.164</td>
<td>.12</td>
</tr>
<tr>
<td>Unit 8</td>
<td>21</td>
<td>11</td>
<td>.123</td>
<td>.000001</td>
</tr>
<tr>
<td>Unit 9</td>
<td>11</td>
<td>8</td>
<td>.146</td>
<td>.000002*</td>
</tr>
<tr>
<td>Unit 10</td>
<td>8</td>
<td>3</td>
<td>.237</td>
<td>.29</td>
</tr>
<tr>
<td>Unit 11</td>
<td>19</td>
<td>8</td>
<td>.164</td>
<td>.0007*</td>
</tr>
<tr>
<td>Unit 12</td>
<td>14</td>
<td>3</td>
<td>.05</td>
<td>.003*</td>
</tr>
<tr>
<td>Unit 13</td>
<td>3</td>
<td>2</td>
<td>.178</td>
<td>.08</td>
</tr>
<tr>
<td>Unit 14</td>
<td>2</td>
<td>2</td>
<td>.164</td>
<td>.02*</td>
</tr>
</tbody>
</table>
Unit 11: Sensory-Motor signs predicts to Units 12 and 13, hallucinations of vision, touch and position, and Unit 12: Visual hallucinations, predicts to Units 13 and 14, Hallucinations of touch and position, and loss of consciousness. Unit 14: Loss of consciousness, is now significant in its prediction of a return to Units 13 and 12, Hallucinations of vision, touch and position. It might be reiterated at this point that these predictions are from the first appearance of one unit to the first appearance of another unit.

A separate analysis of the different modes of hallucinations reveals some interesting patterns. Of the 18 subjects who reported both auditory and visual hallucinations, 17 experienced the auditory hallucinations beginning first. The one exception felt a brief flash of white light before the onset of voices.³

<table>
<thead>
<tr>
<th></th>
<th>auditory</th>
<th>visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>auditory</td>
<td>X</td>
<td>17</td>
</tr>
<tr>
<td>visual</td>
<td>1</td>
<td>X</td>
</tr>
</tbody>
</table>

It is commonly reported that schizophrenic patients more often experience auditory hallucinations than visual hallucinations (e.g. Snyder, 1976). This observation has been supported by a study by Small, Small and Anderson (1966). When this is placed in the framework of the course of psychosis, and given the hypothesis that one may stop anywhere in the sequence, it then seems likely that

³The case of Joan of Arc resembles the exception. In her trial it was reported, "And this voice came about noon in summer in her father's garden, and she had fasted the day before. And she heard the voice on her right hand toward the church and she seldom heard it without a light, which light comes from the same side as the voice, but is usually great." (in Hanscomb, et al., pp.110)
visual hallucinations represent a further progression to a deeper stage of psychosis.

Olfactory hallucinations appear to fall midway between auditory and visual hallucinations. Of the 15 subjects who experienced olfactory hallucinations, 9 experienced them following auditory hallucinations, and 4 had visual hallucinations following the olfactory productions. The two transitions from visual hallucinations to olfaction could be explained by the turn-around phenomena explained on p. 42. Again this is confirmed by the work of Small (1966), whose patients experienced auditory hallucinations most frequently, olfaction next, and visual last.

<table>
<thead>
<tr>
<th></th>
<th>auditory</th>
<th>olfactory</th>
<th>visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>auditory</td>
<td>X</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>olfactory</td>
<td>0</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td>visual</td>
<td>0</td>
<td>2</td>
<td>X</td>
</tr>
</tbody>
</table>

Interesting relationships similarly emerge among the auditory hallucinations. More than twice as many transitions appear from hallucinations of general noises to voices as the reverse, supporting the Hoffer and Osmond (1966) observation; and transitions from general noises, voices and thought-aloud are all made to hallucinations of music, while musical hallucinations proceed to later symptoms.

<table>
<thead>
<tr>
<th></th>
<th>general noises</th>
<th>voices</th>
<th>thoughts aloud</th>
<th>music</th>
</tr>
</thead>
<tbody>
<tr>
<td>general noises</td>
<td>X</td>
<td>10</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>voices</td>
<td>4</td>
<td>X</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>thoughts aloud</td>
<td>0</td>
<td>0</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>music</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>
Reliability and Validity

The value of this study as a "pilot project" is underlined by the absence of additional scorers to provide an index of scorer reliability. This step was not taken only because there was not available sufficient means to reimburse the additional scorers for the high amount of time they would need to expend in order to seriously assist the study. That subjective factors of bias may have seriously influenced the scoring is acknowledged by this writer.

The validity of the sequence extends to persons who have recovered from their psychotic episodes, who evidence a fair degree of competence in communication, (and hence who clearly do not have the "deteriorating course" considered pathognomic to schizophrenia by Kraepelin (1886)). The validity similarly extends only to whose writers who have experienced several of the symptom-stages presented in this paper. To get some index of the average number of symptom-stages (one symptom would be taken as evidence of the stage's presence) experienced by these writers, the 21 book-length accounts were scanned. The average number of symptom-stages experienced is 5.5, an average considerably higher than the 2.5 of Steven's temporal lobe epileptics. The survey results are presented on p. 79. The five writers who had received a diagnosis of Affective Psychosis rather than Schizophrenia did not differ in any apparent way in the number and selection of symptom-stages experienced.
TABLE 10

Stages experienced by authors of book-length autobiographical accounts. Checks indicate that at least one symptom from that stage was described.

<p>| Anon (Thelmar)   | A.S. | | | I | II | III | IV | V | VI | VII | VIII | IX |
|------------------|------|---|---|---|---|---|---|---|---|---|---|---|---|
| Barnes           | S.   |   |   | X | X |   |   | X | X |   |   |   |   |
| Beers            | M-D  | X | X | X | X | X | X | X |   |   |   |   |   |
| Coate            | ?    | X | X | X | X | X | X |   |   |   |   |   |   |
| Courses          | M-D  | X | X | X | X | X | X |   |   |   |   |   |   |
| Custance         | M-D  | X | X |   |   |   |   | X |   |   |   |   |   |
| Graves           | M-D  | X | X |   |   | X | X |   |   |   |   |   |   |
| Green            | P.S. | X | X | X | X | X | X | ? | X |   |   |   |   |
| Hackett          | A.S. | X | X | X | X | X | X |   |   |   |   |   |   |
| Hennell          | P.S. | X | X | X | X | X | X |   |   |   |   |   |   |
| Hillyer          | A.S. | X | X | X | X | X | X |   |   |   |   |   |   |
| Jefferson        | A.S. | ? |   | X | X | X | X |   |   |   |   |   |   |
| Looms            | ?    | X | X | X | X | X | X |   |   |   |   |   |   |
| Nerval           | A.P. | X | X | X | X | X | X | X |   |   |   |   |   |
| Perceval         | P.S. | X | X | X | X | X | X | X |   |   |   |   |   |
| Peters           | P.S. | X | X | X | X | X | X | X |   |   |   |   |   |
| Schreber         | P.S. | X | X | X | X | X | X | X |   |   |   |   |   |</p>
<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sechehaye</td>
<td>P.S.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Strinberg</td>
<td>P.S.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stephan</td>
<td>S.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vonnegut</td>
<td>S.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

The results indicate that the Master Sequence of symptoms has some predictive value for a subgroup of persons in psychosis. If a patient is experiencing racing thoughts, heightened sexuality and is writing and talking a lot, the results suggest that he might next begin to feel that everything in his universe is terribly meaningful, or perhaps threatening. If the patient is hearing crude sounds in his ears, we would not be surprised to find out that those sounds have turned into voices and perhaps even music, and that those voices are busy instructing him to run away, to attack someone or to harm himself. At each step the next stage is never inevitable, simply probable.

No one symptom can be predicted to follow another; only groups of symptoms can be dealt with. There may, in fact, be a completely linear sequence of events in psychosis; on the other hand the unit and stage grouping may represent coincident events. If the former were true, an enormous amount of data would be required to establish statistical significance (about 100,000 transitions). Therefore the units and stages were necessary to make the hypothesis even testable, and further research may demonstrate that they have no more significance other than that.

This discussion section provides an opportunity to consider in wider perspective the nature and significance of these symptoms, and the importance of the order in which they fall.
The Symptoms

The Communalitv of Expression

The symptoms of this study are described by many patients in strikingly similar language, indicating an underlying commonality of experience. For example, the "flight of ideas" is expressed so:

New Ideas came to me in a rush. (Coate, p.20)

Ideas seem to be coming to me faster and better than ever. (Brown)

I'm thinking about a million miles an hour. (Vonnegut, p.92)

Writers describe olfactory hallucinations as

...a soot like smell. (Schreber, p.98)

...the odor of smoke and scorched flesh. (Jefferson)

...the smell of her burnt up flesh. (Greenberg, p.118)

...burning human flesh. (Beers)

A horrible nauseating smell, which I now think was no worse than stale tobacco smoke...But it had then seemed to arise from smoked and poisoned corpses. (Hennell, p.179)

The similarity extends to more intricate descriptive passages. Consider the almost uncanny resemblance of these paragraphs from Nijinsky (1936) and Sechehaye (1951).

I walked and walked...walking quickly uphill I stopped suddenly and did not know what to do. I waited for God's orders, waited and waited...then felt a push and went forward, went higher, walked and walked...I felt a great tiredness, but suddenly sensed a force in me and wanted to run the whole 25 versts...I was doing this without thinking, only feeling. (Nijinsky, p.83)
I began to climb a mountain path...climb higher and higher, at length I reached the top about a thousand meters up there, spent with fatigue, with hunger and exhaustion, I rested for awhile. My head was empty; I thought of nothing, obedient only to an impulse pushing me ever onward...my feet were torn and bleeding and I moved like an automaton. (Sechehaye, pp.76-77)

Primitives of Experience

What is being suggested is that some of the symptoms, which appear so relentlessly in different brain pathologies, may represent primitive units of perceptual experience, the most fundamental processing that the brain performs (a particular odor, light and dark spots of light, humming and roaring sounds, muscle spasms, pain), while others represent more intricate but still pre-wired behaviors (survival behaviors, postural changes), and others the brain's manifold capacity to use experience and memory to invent unique solutions.

As fundamental units, they are more likely to be elicited under a variety of situations of extreme excitement or inhibition, such as brain trauma, stimulation, disease, sensory deprivation, or fatigue. One striking phenomena is the sensitivity of many of the symptoms to exacerbation at night. Mary Cecil writes that:

One of the worrying things is sleep. It is fairly all right once you're there; its the getting in and out of it. Just as you're sliding away, an incoherent babble sets in outside your ears, a pre-emptory voice barks a sentence taken at random from a day's conversation, or a set of grotesque faces flash before your eyes...Surely when one no longer believes in one's imaginary voices, they have no business carrying on a monologue. But they do, in nocturnal snatches, and when
more confidence is gained from other improvements, one accepts their intrusion and ploughs through them into sleep instead of trying to organize them. (Cecil in Kaplan, p. 232)

I would suggest that the symptoms of this study be granted the status of "quantum units" of psychosis, and that, as they are encountered in organic states of lesion, stimulation and disease, they represent "primitives" of our mental experience, fundamental circuits underlying many of our elaborations.

The Range of Core Symptoms

The symptoms selected for this study represent a subset of the complete psychotic phenomenology. A case history, written by Stevens (1957) may permit the reader to estimate just how adequate the above symptoms are in describing the psychotic state:

A 17-year-old boy with an excellent school record became indolent and inattentive during his junior year of high school. He became preoccupied with the Bible, took copious notes day and night, slept increasingly less, and finally became agitated, hallucinated, obsessed with his own crucifixion, suspicious and combatitive when restrained. When admitted to the hospital he appeared preoccupied and intensely hypervigilant, stood in the middle of the ward transfixed, eyes unwinking, staring ahead, arms extended to the side, pupils widely dilated, with episodic marked lateral deviation of the eyes to either side followed by strong head turning as though he heard or saw someone behind him. Consciousness was not lost, he could nearly always reply when coaxed and then denied that anything unusual was happening to him. Lying stiffly on the examining table he held his head rigidly off the mattress, seemed bewildered by a series of peculiar sensations, clutched at his
heart, his genitals, and stared at the ceiling fearfully. Suddenly his eyes swerved to the ground and he reached for his shoe as though it was a pet and stroked it, muttering 'What's that? Right! Right! Keep it in. Stick it in. Shut up.' There were brief twitches of muscles in the hands and arms followed by snapping of the fingers. Perseverated, stereotyped opening and closing of his trousers and repeatedly tucking in his shirt persisted for many minutes after which he shouted 'Jacob! Yes. Yes.' nodded and experienced a sudden myoclonic jerk of the whole body. He then stood in a rigid posture followed by a prolonged period of spontaneous hyper-ventilation during which his attention could not be obtained.

After several days' treatment with large doses of phenothiazines, he became alert, friendly, and able to describe some of the experiences of the previous day, although his memory was incomplete. He recalled electrical and tactile sensations over his body and genitalia, a foul stench in his room, and above all the intense interest, importance and reality of the experience. Questions made him anxious and bewildered and he again became mute, glancing sharply and suspiciously about, and did not wish to continue the interrogation. (p.179)

The following symptoms are found in this case, and are covered by the study: increased writing, attacking behavior, hallucinations, catatonic posture, muscle spasms, electrical and tactile sensations, odor, a sense of increased meaning. On the other hand, a number of symptoms crucial to the case but not included are: attentional changes, religious preoccupation, loss of sleep, paranoia, stereotyped behaviors, and mutism as well as fragmented language. Although it was not possible to incorporate many of these into the present study, sometimes because the symptom was difficult to
define and score reliably (such as attentional loss), sometimes because the writers tended to disregard them (e.g. stereotyped behaviors), or because the symptoms could easily be influenced by external variables (e.g. emotional states), with the assistance of behavioral observations it should be possible to incorporate many of them into a more extensive study. A more complete list of symptomatology with possible physiological bases may be found on pp. 183 of the Appendix.

An example of an intriguing symptom not included in the study is "misidentification", in which the patient sees in those about him the faces of famous or familiar, often familial characters:

Patients there resembled people back home. One looked like my father and another looked like my uncle. (Milici)

The other patients were always members of my own family gradually coming to life. (Fraser, Case #2)

Nearly everyone whom I saw appeared to me as being either relations or friends of well-known people. (Fraser, Case #4)

The Persuasiveness of the Symptoms

These symptoms form a central portion of "schizophrenic" communication. They are experienced with as much as, if not with more compelling force than everyday experiences. Jane Hillyer (1926) writes in frustration:

The doctor, Mrs. W. and the nurses all endeavored to reassure me. They declared everything was all right.
I thought—now, what am I to believe—these people or my own senses? They say that letter is not written in three handwritings, and that I am not talking in all sorts of different voices...Well, I can see for myself those different handwritings and hear myself unmistakably talking in those other people's voices...Now what can it mean? Am I to believe what he says, contrary to the evidence of all my senses? That would simply be irrational. (p.234)

The potency of these symptoms may well account for much of the "disturbed attention" attributed to persons in psychosis (see, for example, Chapman & McGhie, 1961). Stevens (1973) notes that such moments of blocked attention are characteristic of "petit mal" seizures, as well as of schizophrenic episodes, and hypothesizes that attentional disturbances may trigger violent behaviors. But she says:

When asked to describe the subjective state inciting such behavior, replies are indicative of the bizarre internal experience: 'I was burning up'. 'There was a Claybourne mine under me.' 'Everything jumped out at me in the third dimension.' A former boxer who displayed episodic blinking associated with delayed response times offered the explanation. 'the lights got too bright, like being in the police station', or, at another time, 'Can't you hear the pounding in my head. It's like being beat up in the ring.' (p.179)

It should be evident that, rather than being simply abstracted, these persons are paying attention to these very extraordinary taking place within them: temperature changes, changes in visual constancies, auditory hallucinations and the like. With such extraordinary events occurring, it is no wonder that many persons in psychosis appear unable to attend well to external stimuli.
This is not to say that fundamental changes in the attentional system do not occur, but that much that is taken to be an intrinsic attentional deficit may not be so.

The Duration of the Symptoms and the Push for Interpretation

Those symptoms which endure for the longest time, and which are the furthest from the ordinary require considerable explanatory work on the part of the person in psychosis. An epileptic may sense an olfactory aura so briefly that there is neither the time nor the need to develop any rationale for its existence. That same olfactory hallucination in psychosis which may persist for a day, or for as long as several months, requires assimilation into the person's rational order. So the person may conclude that he is smelling bad, or that persons who do not care for him are placing poisonous fumes about him.

The press for interpretations may possibly be reflected in the development of auditory hallucinations, which tend to begin with simple components of sound, tones, buzzing, ringing and the like, and to progress to voices and music.

In the beginning it seemed mostly nonsense, but as things went along they made more sense. Once you hear the voices you realize they've always been there. Its just a matter of being tuned into them. (Vonnegut, p.106)

Behind the far wall a discordant hum, like static, rose and filled the apartment...the sharp static mellowed into speech. (O'Brian)

At various times, while my mind was hovering between reason and blank madness, voices from an unseen world came to my consciousness. The sounds, at first rhythmically unintelligible, swelled on the air to a
crescendo of frenzied but perfect articulation. (Looms, p.62)

Conversely, a patient during recovery will pass back from voices to the simpler ear sounds:

Sounds of voices have been tapering off for the last 5 years...I still fancy I hear a slight buzzing in my ears, from their having been so many years my constant companions. (Anon, 1849, p.467)

The same interpretative process may lie behind some kinds of visual hallucinations. Hennell (1974) writes:

...presently my attention was caught by some specks which were moving on a small patch of the cream-painted wall. These at first looked like little spiders or insects: but though they were indeed ant-like, closer attention revealed them to be (to my astonishment!) little black men scarcely a quarter of an inch high, but unmistakable. (p.205)

The Masking of Symptoms: A Case in Point

The press for interpretation, the need to structure and assimilate unusual experiences into the person's life, may be a process which has obscured some very powerful common symptoms. For example, many persons in psychosis decide at some point that they cannot eat certain food, or indeed cannot eat at all and require tube-feeding. Bleuler noted this, and wrote "in no mental disease does complete refusal of food occur too frequently and so persistently as in schizophrenia (1950, p.163). A quick survey of the cases in this study shows that of the 22 book-length accounts, selected because in these long recitals there would be the greatest opportunity for a patient to mention such a mundane symptom, 15 mentioned a marked change in feeding, 13 of these a
loss (See p. 91).

The interpretations given for the refusal of food range from the straightforward:

The bread had a sharply bitter taste. The texture was awful, sticking to the roof of my mouth...My sense of taste was as badly screwed up as all my other sense, which had allot to to with my giving up food in the first place, and is also why so many schizies think they're being poisoned. I don't care how much you trust your own sense more. It sure don't taste like tomato juice. (Vonnegut, p.120)

to the bizarre:

I got the idea that in taking food I was in a sense eating the body of my youngest child. (Anon, 1955, in Kaplan, p.106)

Explanations given in the autobiographies for inability to eat include fear of poisoning (Coursen, Boisen, Beers, Vonnegut), the need for self-sacrifice (Schreber), the command of the voices (Sechehaye, Perceval), a state of being undeserving (Fraser's Case #1, Clark), a conviction that eating brings out sexual feelings (Nijinsky), a belief that one's own digestive system has been tampered with (Mayer's patient in Landis, reported in Jefferson), a fear of cannibalism (Anon, 1955, Angyal's patient), and the belief that, because one is dead, one cannot eat (Coursen, Anon, 1901). A few reported simply that they couldn't eat (Anon, 1917, Fraser's Case #2, Milici, Fraser's Case #4). For all of the diverse responses, one simple fact remains, these persons experienced a radical change in appetite. This is an important symptom for both psychoanalytic and biochemical researchers in the field of psychosis.
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S  Schizophrenia  
M-D  Manic-depression  
P.S.  Paranoid Schizophrenia  
A.P.  Affective Psychosis  
?  No diagnosis is known
The Emergence of Themes

Certain delusional themes recur in a number of the autobiographies. Delusional thinking, a frequent counterpart of the symptoms examined in this study, may spring from the psychological well-spring of needs and capacities within the patient, from the attempt to make sense of certain particularly odd symptoms, or both. Many of the delusional themes appear to be, like dreams, overdetermined, meeting a number of needs at once. To illustrate, we will take a look at several such themes: The Bell Jar, Transportation to Another World, World Catastrophe - World Burning, The World as Stage, and The Pit.

The Bell Jar

Patients write of being encapsulated, somehow shut off from the normal progression of life by a kind of bell jar, a barrier which has both metaphorical and perceptual reality. Sylvia Plath, in The bell jar (1971), wrote of being wrapped like a cocoon, all of her fears and strange perceptions buried within. But the wrapping was clear, a glass bell jar, standing between her self and the rest of the world. After attempting suicide, she writes that

I sank back into the gray, plush seat and closed my eyes. The air of the bell jar wadded around me and I couldn't stir. (p.197)

Immediately following ECT, however, there is a change:

Doctor Nolan led me through a door into fresh, blue-skied air. All the heat and fear had purged itself. I felt surprisingly at peace. The bell-jar hung, suspended, a few feet above my head. I was open to the circulating air. (p.227)

The bell jar is a powerful metaphor for estrangement, and there
appear to be several key symptoms adding their strength to the theme: an inhibition of sound, and visual veiling:

It appeared to me as if something was trying to isolate me from the outer world; at the same time a softened atmosphere formed about me...an isolating layer. (Heveroch's patient in Landis, p.103)

...as if I were looking through a film of gelatin. (Peters)

There was a fog around me in some sense. (Bowers Case #3, p.27)

I was veiled. It was quiet and restful but a little wearing after a time. I tried to brush something cobwebby from before me; it would not brush. Sounds came through a velvet screen. (Hillyer, p.51)

It was as if Hilda stood centered in a dream. The thick but transparent walls of this wove stickily about her at a room's depth. Had she walked 6 paces this way or 6 paces that, it would still be about her clinging to her as the mass of egg matter surrounds the uncracked chick. (Coursen, p.1)

Similarly, Will (1972) reports a catatonic patient who felt as though she were "walled off from other people by a cylinder of glass" (p.43).

Another World

The delusion of being transported to another world sums up the conviction of the person in psychosis that his world is no longer recognizable. All manner of perceptual changes may contri-

---

4The same effect has been noted in hashish. A cloud of unutterable strangeness was settling over me, and wrapping me inpenetrably in from all that was natural or familiar. (Ludlow in Landis, p.386)
bute to this conclusion. For example:

**lightness - flight**
I had no doubt that I should fly direct to Jupiter, could I get into the free air. An ethereal lightness seemed to pervade my whole frame, and the great stone edifice itself appeared to be sustained in mid-air. It was a long time after I began to recover and walked out before the earth seemed firm and resisting under my feet. (Anon, 1856, p.30)

**motion - flight**
A whizzing and careening through trackless solitudes, a sense of rapid and lonely motion, at an incalculable rate. (Anon, 1856, p.34)

**slowing of time**
Time seemed to stop altogether; the atmosphere was breathless, suspended and dead quiet. The sensation of being in another world was overpowering, terrifying. (Dearborn, 1950, p.91)

**loss of visual constancies**
...a kind of unsubstantiality to persons I saw--for that their forms appeared to dilate and contract, did, I have no doubt, contribute to the delusion that I was surrounded by spiritual bodies--and I myself in such a body. (Perceval, p.285)

Hilda Kroner (1936) puts in more poetic language how loss of size constancy, as well as the brightening of the air and the damping of sound, helped her conclude that she was in Heaven:

Limitless distance of receding rails, swooping, receiving and departing lines of trains swept by her as she waited on the August sunned platform. When and where was this world? What the sound or meaning? The eternity of space, the lightness of the air? She had died again and this was the unreal, half-realized aftermath of death, a winged, transcended land of shadow, of light, hushed
and receiving sound.

Like a ghost of herself, she suddenly entered the silent opened door of one of the trains, and ghost-like it swept on through cloud and air depositing her in a station, she thought was another spot somewhere situated in this land of After-Life, where hundreds of appearing and disappearing ghost-like forms mingled and vanished about her. (p. 58)

The World as a Stage

From Marcus Aurelius to Shakespeare the world has been likened to a stage, and for many reasons. To the person in psychosis the world may lose its three-dimensionality, and so appear constructed as would be a stage:

...the paste-board scenery...the trees and hedges were of cardboard, placed here and there, like stage accessories. (Sechehaye, p. 28)

I did not know whether to take the streets of Leipzig through which I traveled as only theatre props, perhaps in the fashion in which Prince Potempkin is said to have put them up for Empress Catherine II of Russia during her travels through the desolate country, so as to give her the impression of a flourishing countryside. (Schreber, p. 102)

Mme. Sechehaye (1951) suggests that such loss of depth results from the withdrawal of libido from the world. We are not in a position to know for certain which came first, the interpretation or the perception, but we can see that they do indeed occur together.
The World Burning

In a general sense, most persons in psychosis share the conviction that their known self and their familiar world have been destroyed. A number of persons who later become psychotic have been reported to have harbored over years the need for, the desire for this destruction, and such motivation may lie behind the theme of the world burning. (See Klein, 1946, who interpreted Schreber's "world catastrophe" fantasy as the ascendancy of the destructive impulse over the libido.)

The symptoms supporting the perception of the world as being destroyed by burning are a smoky light, sometimes in spiral columns, and occasionally the additional presence of the olfactory hallucination of burning.

I saw the whole horizon black with thick columns of smoke and I smelt the smell of burning and thought the great day of Judgement was actually taking place. (Davidson, p.46)

She could see the sun glaring red through the black haze of air and space. It was as if some giant fungus had been puffed, exploded and now was left its billions of smoky spores filling the world. (Kroner, p.3)

At last I began to imagine that the final dissolution of all things was coming on thus, transferring the tumult of my own mind to external nature...It was my last look upon the earth that had once contained for me so much gladness and beauty. The rustling of the dead and

---

5The columns of smoke is reminiscent of Rossetti's images. Rossetti, who became increasingly paranoid and suicidal "often complained of a film as of curling smoke or effervescent champagne always before his eyes. (Bragman, 1936, p.1114).
dying leaves, the smoking light that lay over the landscape confirmed the impression
the sun's eye had a sickly glare
the earth with age was dim.
(Anon, 1856, pp.30-31)

The Pit

The Pit is a less frequently encountered image, as it appears to spring from efforts to describe periods of partial and total unconsciousness, and many patients do not develop this severe a symptom. The Pit image contains the symptoms of falling, darkness and loss of consciousness, and, as it is often described as having yellow lights about it, simple visual displays.

Lara Jefferson writes only:

I fell into the pit yawning beneath me. (In Kaplan, p.37)

But Deborah Blau, in I never promised you a rose garden (1964), developed the image in a more complex way. The Pit for her represented the place she fell to which lay beyond her hallucinatory/delusional land of Yr:

This time the fall was far. There was utter darkness for a long time and then grayness, seen only in bands across the eye. The place was familiar. It was the Pit. (p.51)

One of her companion-gods, Anterrabae, seems to have been developed from this experience: he falls into the Pit—he is the "falling God" (p.63), he smells of burning (p.74), and he bears flashes of light, either in his hair, or as a sheaf of sparks (p.212).

Will (1972) writes of his catatonic client that she speaks in a similar metaphor:
At about five years there was developed the concept of the Well-something like a cylindrical deep hole with glass-like black walls streaked with yellow. At the top was an opening toward which one could climb by a ladder attached to the wall.

Like the Bell Jar, the Well was reported to be a place both of comfort and fear. "Although being in the Well was frightening, it was also a refuge and protection from the panic of separation..." (p. 42).

In another variant, the themes of the bell jar and the Pit are woven together in this image from Hennell (1967):

Somehow I had got into a long and pointed glass case (there were two or three other such cases) filled with strange unnatural light. No possible way was there of getting out of this case, which nodded and tottered on the edge of a precipice: the case was somewhat flexible. A well of dizzying depth was directly behind, which seemed bottomless, it could go clean through the earth: the remoteness of the place was ghastly, the sky was darkly ceiled. (p. 100)

The Clinical Response

Too frequently the descriptions given by patients of their symptoms are greeted by disbelief, are radically reinterpreted, or are ignored. A number of the authors of autobiographies included in this study were considered hypochondriacal years before they came for psychiatric treatment. Joanne Greenberg, author of I never promised you a rose garden (1964), came to Dr. Frieda Fromm-Reichman with a medical report indicating a "long history of hypochondria" (p. 19). When the doctor asked her why she had come to the hospital, she replied:
Clumsiness. Clumsiness is first and then we have a list: lazy, wayward, headstrong, self-centered... also a liar. That category includes subheads: false blindness, imaginary pains causing real doubling up, lying leg injuries, fake dizziness and unproved and malicious malingering... Deborah thought she had spoken her true feelings for the first time. (p.23)

The accusations of hypochondria continue into periods of treatment. Judge Daniel Schreber was evaluated as "hypochondriacal" by the courts and his doctors (Report of the Courts in Schreber, p.268). The charge of hypochondria appears to spring more from patient reports of pains and strange visceral sensations than from auditory, olfactory or visual hallucinations.

Even the most prominent therapists have ignored the symptomatology described in this paper. H.S. Sullivan, for example, supervised a case (the case description was published in 1976) of a young man who:

...said that he had a strong desire to remove his clothing and walk about naked, flailing his arms aimlessly... has spells of vertigo... another thing was the littleness with which he saw things. (pp.101-187)

These symptoms were reported only incidently, and never considered worthy of direct address.

If a symptom is not denied by a doctor or a therapist, it is often given a meaning not supplied by the patient himself. This process of "reading in meaning" is, of course, one of the staple skills of a therapist. It is best used with extreme caution, checking with the patient's own perception. The potential for the misuse of such a skill may be shown in the example of clinical in-
interpretations of raw auditory hallucinations. Judge Daniel Schreber complained of bird-like chirping sounds, and Freud (1911) considered them a symbolic production expressing his disparagement of women, birds being a colloquial phrase for women. MacAlpin and Hunter (1955), reflecting that birds were the ancient bearers of souls from heaven to earth, consider these bird-like sounds symbolic of Schreber's desire to procreate.

The denial and projection produced by therapists in response to their client's experiences may spring from unfamiliarity with the perceptions described. An alternative therapeutic response would be to believe the descriptions of raw symptoms given by clients, and to venture a translation process. If a patient reports feeling as though he is flying, he might be asked to describe what he feels like—does his body feel light, or in motion? When he reports feeling as though he is being gassed, he might be asked if he is sensing a particular odor, and if so, of what kind. If the answer is positive, the therapist might share with the person similar experiences of other clients, so reducing his or her sense of being terribly alone with such bizarre perceptions.

The Sequence

The sequence in this study represents only a tendency, not a requirement, of certain symptom groups to precede others. Just as the presentation of symptoms was far from exhaustive, so the sequence description is not complete. Certain symptoms such as repetitious behaviors and problems in identification of persons appear frequently at the sequence's end, but were not included in the study,
either because they were not seen in time, or because they seemed to reappear at differing places in the sequence. A more thorough hypothesized sequence appears in Figure 11 on p. 103.

The Temporal Dimensions of the Sequence

The authors of the autobiographical accounts used in this study spent greatly differing amounts of time with each symptom, and in each stage. This enormous temporal range is rarely addressed in the more biochemical approaches to psychosis; whatever mechanism is suggested must be capable of progressing at greatly differing rates. The "flash of insight" came so briefly to Hennell (1967) that he hadn't time to put it into words, while with Nerval (1957) it endured part of a day and with Looms (1928), over many days. An olfactory hallucination may appear swiftly as "a whiff of burning" (Greenberg, 1964) or may persist for days as with Strinberg. Flight with amnesia may encompass an hour (as with a client of this writer) or several months (as with a fugue state).

The Intensity Dimension of the Sequence

Much in the way one might have a mild or severe viral infection, so the sequence may be experienced lightly, or in a manner that makes the continuance of normal life impossible. The "light" versions may rarely come to medical attention. I had an opportunity to witness a "light" sequence while working at a local clinic. The client had a family history of schizophrenia, and had endured catatonic seizures and outbursts of rage years earlier. In this instance the client began to sleep poorly. She wrote down an extraordinary number of thoughts onto paper, handing her therapist sheaves of midnight writings. She soon began to complain of a
Figure 11: A More Complete Hypothesized Sequence

Preliminary depression, social withdrawal

"Mania" signs: racing thoughts, increased writing, speech, insomnia, euphoria, initial rise, then loss of appetite heightened meaning, flashes of insight

Premonitory feelings, perception of time slowing, euphoria gives way to fear, some petit mal signs

Fear-paranoia, SNS arousal: headaches, nausea and vertigo, tinnitus

Auditory anomalies: intensified general sounds, later voices, thoughts aloud, music. Rare light flashes.

Fight, flight or freeze actions: attack, self-attack, flight, nudity, loss of memory, fugue, Catatonic posturing, dysautonomization of movement.

Visual changes: constancies gone, inability to read or write.

Depression: fatigue, loss of sensation, increased anorexia

Olfactory and gustatory hallucinations

Visual hallucinations

Touch and position hallucinations

Loss of consciousness, defecation, micturition

Thought disorder, long-term memory impairment, misidentification.
sense that something terrible was about to happen. I do not know whether or not she experienced any auditory anomalies or not—she has in the past heard "siren-like" sounds in her head. But she became increasingly irritable, attacking her friends and employer verbally. Immediately thereafter she was bedridden for several days with muscle spasms, and consequent lethargy. She then recovered. Not only did she not reach the deepest parts of the sequence, the hallucinations of vision, touch and position and loss of consciousness, but she experienced only mildly the early symptoms.

The Psychological Impact of the Sequence

Certain aspects of psychotic phenomenology may most easily be explained through recourse to the sequence. For example, voices frequently comment on the person's behaviors and private thoughts. The great number that occur with specific directives for fight or flight may make sense in the positioning of auditory anomalies before fight, flight, or postural stages.

At once the command came. Take off your clothes and walk. (Clark)

I was forced by voices to walk miles and miles about the city. (McDonald in Kaplan, p.175)

As I was thus unclothing myself, I had a strong internal impression that all was well done, and a full compliance with the Design of the Voice. (Trosse in Landis, p.26)

Something said to me, 'Are you willing to commit suicide?' And it was just like I had to do it. (Boisen in Landis, p.46)

The voices are rarely, if ever, found commenting on the earliest part of the sequence, the hyperactivity, sense of foreboding, or
increased writing and speaking.

Some seemingly bizarre behaviors of persons in psychosis, when considered in the context of the full sequence, may be seen as efforts toward homeostasis. For example, the arousal that precedes fight, flight and compulsive posturing includes delivery of supplies of blood to the head that may cause headaches, and temperature changes. The attraction of psychotic patients for cold in the early part of the disorder may be seen as an effort to change this. Vonnegut (1975), after running through the woods hearing wings beating about his head (a frequent metaphor for tinnitus), reaches down into the snow and presses handfuls of it to his face. Similarly Schreber (1902) places his feet in the snow, or out a cold window.

Miracles make my feet cold and my feet hot...From youth accustomed to enduring both heat and cold, these miracles troubled me little, except when miracles made my feet cold while lying in bed, as happened often. Conversely, I myself have often been forced to seek heat and cold...I frequently clung to the icy tress with my hands for many minutes during the winter or held balls of snow until my hands were almost paralyzed. For some time...I put my feet through the iron bars of the open window at night in order to expose them to the cold rain. As long as I did this the rays could not reach my head...and I felt therefore, perfectly well apart from frozen feet. (Schreber, pp.145-146)

Milici and Von Salzan (1938) wrote of a client:

Consequently she wet her face and hair and held cold metals in her hands thinking that she could thus 'draw the flashes away from her head.' (p.656)

She said, 'I lifted a cold metal pot and the contact of
that seemed to give me a little relief. (p.661)
The ability of a sequence to provide psychotic behaviors with an explanatory context is potentially enormous.

**The Sequence and Diagnosis**

The Sequence provides another perspective from which view the traditional diagnostic categories. Several traditional categories, such as Mania, Paranoia, Catatonia and Depression clearly describe places along the Sequence. It is well known that persons given one of these labels may later be given another diagnosis; using the framework of this study one would say that the person is progressing along the Sequence. The placement of such categories is shown in Figure 11 on p.79. Mania begins the series, Paranoia comes next, then Catatonic Schizophrenia as defined by the International Pilot Study on Schizophrenia (IPPS) continue the progression. Depression follows briefly, and preceded a "Toxic" psychosis, encompassing visual hallucinations and loss of consciousness--i.e. a loss of a "clear sensorium". After a return or continuation of earlier symptoms, a post-psychotic Depression follows.

Although it might be supposed that individuals tend to experience just a few of these symptom regions, and so be eligible for one or two of the diagnostic categories, the authors of the book-length autobiographies, as was shown on pages 70 through 80, frequently experienced many
Figure 12
Relationship of common diagnostic labels to stages of the Master Sequence.

1. Mania

2. Paranoid Schizophrenia

3.

4.

5. Catatonic Schizophrenia

6.

7. Depression    Depression

8. "Toxic" Psychosis

9.
of the stages. As was mentioned earlier, the greatest variation seems to occur around the duration and intensity with which the symptom-stages are experienced. This position should be tested empirically, but does suggest that current diagnostic attempts to draw boundaries between groups has been somewhat arbitrary.

It is also unclear whether a person should be diagnosed "psychotic" when they experience a certain number of the symptoms included in this study, or whether they must, in addition, interpret these symptoms in unusual ways. Klein (1972) writes that "Psychosis is defined here as a persistent misevaluation of perception not attributable to sensory defect or afferent abnormality." Searles (1967, p.119) also emphasizes the interpretive portion of the psychotic experience:

He /the psychotic person/ has no reliable way of knowing whether that which he is perceiving is part of an inner fantasy world, or part of an outer real world! Whether it is alive or unalive, human or nonhuman, and so on.

There are, however, throughout the autobiographies some heroic instances of persons maintaining a kind of double-awareness, experiencing the symptoms which distort known reality, yet acknowledging that they are produced by one's own mind. Massoon (1973) describes his fight to avoid responding to hallucinatory stimuli so:

...I was very nearly deceived into answering auditory stimuli during one hectic week. But I am a pretty reticent person--thank God for that--and I pretty much kept my wild thoughts to myself, a not considerable feat. Possibly the knowledge that all of this had its beginning and end in the self was a help.
It might be a more clear diagnostic procedure to assess separately the symptomatology as considered in this paper, and the psychological confusion, or interpretative peculiarity consequent upon the symptoms.

The Meaning of the Sequence

It is the sequence, far more than the individual symptoms that has import for theoreticians of psychosis. The emphasis of this study has not been on the meaning of the sequence, from the conviction that there is currently more fiction than facts in research concerned with psychosis. It should be clear that the sequence is amenable to a biological, a psychological or a mixed model interpretation. Examples of such approach will now be considered. The reader is reminded again that the sequence as presented in this paper is not considered an inevitable progression, but rather an average tendency, and has yet to be rigorously supported.

Physiological Ramifications

Perhaps the most striking aspect of this study is the extent to which a variety of symptoms were shared by a number of persons in psychosis. Biological models emphasizing single symptoms such as paranoia, stereotypy, catatonia or visual changes do not do justice to the entire syndrome.

Several dimensions of the symptoms and the sequence deserve underlining. First, the time course is unusually varied, a characteristic of some diseases but not all. Any model, such as an excess or deficit in one or several transmitters, would need to take this into account. Second, the number of brain regions implied
by the symptom variety is also vast. The tracts and structures implied by any particular model should reflect this diversity.

A sample physiological model could hold that stress would generate an amphetamine-like effect, releasing norepinephrine (NE) first in excess, then in deficit, dopamine (DA) next in excess, then in deficit, serotonin (5-HT) and acetylcholine (ACH) last. The symptomatology would roughly follow this pattern with attention and arousal changes (NE) preceding limbic and basal ganglia signs (DA), in turn preceding visual hallucinations (5-HT) and so forth.
A Psychological Model

A keystone to most psychological approaches to psychosis has been the conviction that the disorder represents a regression to earlier stages of development, where primitive needs may be expressed and met. "It is this revival of infantile dynamics that forms the core of every psychosis" (Cameron, 1963, p.463). In this process, then, some of the symptoms may be seen as expressing the primary process of regression, while others indicate attempts to restore adult world perspective.

The initial impetus for regression has been hypothesized to come from some basic threat to a person's ego, a loss, a blow to self-esteem, some new information about a person's self-theory, so out of the ordinary way in which a person usually thinks about himself that the self-theory collapses (Epstein, unpublished, 1973). This disintegration of old ways of thinking may carry with it natural healing properties, as old needs may be met (e.g. Schiff regressive treatment) of new information assimilated during the period of disorganization (Epstein, unpublished, 1973).

The sequence of symptoms may then be examined form this perspective. Let us assume that some threat, whether internal or external in origin, causes the person to withdraw his investment in the outside world and center it more narcissistically upon himself. The withdrawal of "libido" from the outside world has been considered fundamental to psychosis by most persons of analytic per-
suasion (e.g. Freud, 1911; Sechehaye, 1951). This initial investment in the self, or rather re-investment, as it recapitulates an earlier narcissitic stage of development, brings with it a sudden rise of energy and drive. The pleasure in such a transfer of attention is reflected in the tone of euphoria often remarked upon in mania, and may point to relief at no longer having to confront unwelcome challenges from the outside world, pleasure at experiencing one's self strongly, as well as a heightening of autoerotic tendencies. When the challenge has as its origin the emergence of heretofore unassimilable information, the rise in energy and pleasure may have as its source the relief of denial, an often described trait of manic patients. In other words, the person in a manic condition would stay up late into the night spinning plans and theories which deny not only outer reality but also certain unpleasant psychological conflicts.

All things about the person now take on enhanced meaning as he himself has become the reference, replacing memories of a more socialized "reality". While this condition is most interesting to most persons in their psychotic episodes, it is also rather bewildering, as everything must be attended to and referred to the self. "The schizophrenic in the midst of the confusion may have something like a sudden flash of insight. All of a sudden he understands things. His confusion is at least partially eliminated because he accepts his psychotic interpretations of the world" (Arieti, 1955, p. ). So while the phase of heightened meaning is symptomatic of the primary regression underway, the flash of insight, which often provides the germinal idea of paranoid
delusions, may be an attempt to halt the bewildering process.

The withdrawal of libido/energy/attention from objects outside the self not only intensifies the person's consciousness of himself, but surfaces precisely those needs and conflicts he may well have been attempting to avoid in the initial withdrawal. That is, focused attention of one's self makes more inevitable attention to personal conflicts which may have been more obsessionally hidden by attention given to external matters. These old conflicts, often sexual in nature, demand their turn again, and the person in psychosis feels his euphoria begin to combine with fear, a premonition of one's self and world inexorably changing.

Under pressure from these older conflicts, fear becomes dominant, and signs of overriding arousal becomes evident. Higher cognitive functions give way, language and memory begins to disorganize. Fragments of language make their way to consciousness in the form of voices, which often express the hidden impulses, reprimanding the person for homosexual interests or aggressive desires. Faced with such threatening material, the attendant panic dictates "survival-oriented" behaviors. So he may try to act upon these impulses (attacking, exposing himself) or may try to avoid them through attacks upon himself or through catatonic freezing.

While these survival-behaviors may have served the species at certain points in development, they tend now to generate only more chaos, and usually result in hospitalization. In the hospital the person may be forced to regress even further, to assume even more infantile postures and to relinquish more cognitive controls. Vision becomes disturbed, as the intellectual work of making size, shape, color and brightness discriminations gives way.
A lethargy may follow, as the person surrenders to an infant-like state in which raw perceptions of odors, sounds, sights and pains are responded to by simple reflexes, or by no response at all. The person may now require force-feedings and clothing, as he no longer takes care of himself. The final regressive point in this sequence is the surrender of consciousness itself.

Throughout this process the person may use this time out-of-the-ordinary to become dependent enough to receive long sought-for nurturance (Schiff, 1970) or to assimilate concepts which were not admissable in his formerly rigid structured self-theory (Epstein, 1973).

An Interactional Model

The persuasive evidence of genetic, constitutional, neurotransmitter and endocrine connections with psychotic phenomena, together with the many contributions on the psychological aspects of psychosis, all point to the need for a developed interactional model.

Stress with its attendant changes in transmitter levels (e.g. Weiss, et al., 1970; Welch & Hendley, 1974) and its effects upon the immune system (Monjan & Carpenter, 1977) could well trigger a process which calls forth, in a kind of "slow seizure epilepsy", many of the symptoms described in this paper. Just as one person's constitution and personal history varies from anothers', so this process will differentially affect individuals in its rate, intensity, duration and periodicity. Furthermore, persons without a family history of psychosis, and/or who have received the "good-enough" parenting described by Winnicott (1955), will be more equipped to withstand the assault to self-regard a disorder invol-
ving the brain involves. The differences will be manifest less in the symptomatology (let us guess that most persons with this disorder will experience say, unusual sounds, odors and lights), and more in the variables of rate, cyclicity, etc., in the ways in which the person accepts or rejects the experience, and in the supports available to the person in psychosis.

The symptomatology of psychosis as here described should be distinguished from the content, which would be directed by personal history, and by the interaction of that history with the emerging symptoms. As should be apparent in the preceding section on "a psychological model", it cannot yet be determined with any final clarity which symptoms definitely have their origin in the somatic process. One may be more confident of the raw auditory sounds, the moving dots of light, the particular sweet but repellent odor, the difficulties of posture, as having somatic origin than of the sense of heightened meaning, the arousal and "survival" behaviors, the voices and visual scenes. It is probably a reasonable strategy for researchers at this time to keep an open mind as to the many options available, and to continue with systematic descriptive work.

Implications for Further Research

The whole area of the progression of events in psychosis is a crucial one to continue to explore; it has the capacity to inform clinicians of much that their clients are experiencing, to provide those doing experimental work important variables to consider, and may supply biologists with suggestions about the tracts and structures involved in the neural substrate of psychosis.
Any extension of this work must include reliability checks, as well as an attempt to broaden its validity through work with hospitalized patients.

Obtaining information from persons in the midst of a psychotic episode is a chaotic enterprise. Working with a recently recovered patient has its own problems: often a person is still fragile, and frightened of anything that might trigger a recurrence. It might be possible to work in collaboration with a psychologist in an out-patient setting, interviewing someone who had made the transition to the outside, but who was still working through his experience in a therapeutic setting. One simple method of approaching such work was developed in the course of this study, and is described in the Postscript on p.117.
POST SCRIPT: A Case Example

An opportunity to test the sequence, and to begin the exploration of its therapeutic possibilities became available when a young student confided to a colleague that he was deeply afraid of a recurrence of psychosis. Five years ago he had taken LSD, and had experienced a prolonged psychotic episode, and several years later, had a spontaneous recurrence. When my colleague, familiar with the material of this study, shared with him an appreciation of his symptoms, the student became elated and relieved, claiming that heretofore he thought his experience was not only strange but singular. He offered to help me in any way he could, and we arranged for one several-hour appointment.

My interview with the student began with a card sorting task. Each card in the deck contained a description of one of the symptoms in the Master Sequence, as well as a number of blank cards for him to use if there were symptoms not covered. I asked him first to sort the cards into two piles, one containing those symptoms he recalled, the other those which were unfamiliar. Then I asked him to arrange the familiar symptoms in temporal sequence, asking him only for the "spontaneous psychosis". His order is presented below, with his embellishments:

1. He looked down and saw that his pants had been split. HOBJ?
2. He felt a sense of impending doom. PREM
3. He became afraid that someone had poisoned him. (PARA)
4. People seemed to be talking nonsense. (DAUD)
5. He had to sit in a certain position. CPOS
6. Movement became jerky. His arm seemed to move in stages. JMOV

7. A strange light flew in the window and made him feel good. LIGT

At this point he said he went to bed and slept soundly. The next day the psychosis resumed:

8. He fantasized attacking people. ATTK

9. He took off all his clothes and went out into the street. NUDE

10. He saw peoples' faces change.

11. He hallucinated another person in the ambulance. HPER

12. He felt compelled to touch the clock in the waiting room often. (CBEH)

At this point he was given thorazine, but barely remembers it because he was fainting. UNCT

For four years following this episode he had been tired and depressed, unable to taste food, and had often lost depth perception.

The above sequence is a fair match to that presented in this paper, with several exceptions. The sequence begins with a kind of visual hallucination or misperception, and the sequence may have been "set back" by sleep. The perception of people talking nonsense, although it was not included in this study, falls in the same place in the sequence as auditory anomalies. The paranoia and compulsive behavior have already been noted as symptoms to be included in a following study.

The student's phrases coincided with those found in the autobiographies. For example, he mentioned "a light that flew in the window and made him feel good." An anonymous writer in 1854 similarly reported that "all of a sudden, the most brilliant light darted into the room and filled me with astonishment."
When I read some of the quotations from the Appendix of this study, the student became intensely excited. At a certain point, however, the elation dampened. When he had spoken of a period in his LSD psychosis, a time when everything seemed embued with great importance, I, in my messianic zeal, hastened to read him the quotes that would show him that others had shared that too. The atmosphere between us changed markedly, and I realized that I had come close to taking away an experience that he had no desire to part with, an experience, rather, that he was constantly wishing could somehow be recovered without the pain attendant on the full psychotic experience. I remembered a passage from Dostoyevsky's *The Idiot,* that seemed both moving and apt:

He remembered among other things that he always had one minute just before the epileptic fit (if it came on when he was awake) when suddenly in the midst of sadness, spiritual darkness and oppression, there seemed at moments a flash of light in his brain, and with extraordinary impetus all his vital forces suddenly began working at their highest tension. The sense of life, the consciousness of self, were multiplied ten times at these moments which passed like a flash of lightning...

Thinking of that moment later, when he was all right again, he often said to himself that all these gleams and flashes of the highest sensation of life and self-consciousness, and therefore of the highest form of existence, were nothing but disease, the interruption of the normal conditions; and if so, it was not at all the highest form of being, but on the contrary must be reckoned the lowest. And yet he came to an extremely paradoxical conclusion. 'What if it is disease?' he decided at last. 'What does it matter that it is an abnormal
intensity, if the result, is the minute of sensation, remembered and analyzed afterwards in health turns out to be the acme of harmony and beauty, and gives a feeling, unknown and undivined until then, of completeness of proportion, of reconciliation, and of ecstatic devotional merging into the highest synthesis of life?... at that second, that is at the very last conscious moment before the fit, he had time to say to himself clearly and consciously, "Yes, for this moment one might give one's whole life!" then without doubt that moment was worth the whole of life. (pp.258-259)

I shared this passage with the student, and he seemed responsive to it, but I left wondering how he would decide to resolve such a subtle paradox.
"It came into my head, I am told, to put my hand into the fire, persuaded that I might draw it out unhurt. I was either dissuaded and unscored because action not executed, only completed actions were scored, or prevented from doing this. During the evening I discovered I had not brought my pocket handkerchief. My friend Captain...sent for one of his; it was of red silk; the impression came on my mind that it was a token of ill to me, and I exclaimed—what have you given to me? you have given me blood. Conversation was going on (LATER— he reads special meaning into gesture) and my words were hushed over, but I foreboded a calamity which though inevitable I could not distinctly foresee.

...In the night I awoke under the most dreadful impressions: I heard a voice addressing me, and I was made to imagine that my disobedience to the faith, in taking the medicine overnight, had not only offended the Lord, but had rendered the work of my salvation extremely difficult, by its effect upon my spirits and humors. I heard that I could only be saved now by being changed into a spiritual body; and that a great fight would take place in my mortal body between Satan and Jesus; the result of which would either my perfection in a spiritual body, or my awakening in hell. I am not sure whether before or after this, I was not commanded to cry aloud, for consenting to which I was immediately rebuked, as unmindful of the promise I had made to my friend. A spirit came upon me and prepared to guide me in my actions. I was lying on my back and the spirit seemed to light on my pillow by my right ear, and to command my body. I was placed in a fatiguing attitude, resting
on my feet, my knees drawn up and on my head, and made to swing

my body from side to side without ceasing. In the meantime I

heard voices without and within me, and sounds as of the clanking
of iron, and the breathing of great forge bellows, and the force
of flames...

...I imagined also that the Holy Ghost had in a special manner
descended, and worked with Jesus to save me. I considered it a
proof of the truth of my imaginations, when on arising, being
perplexed by two different guidings that came on me, I looked
down upon my limbs which were white and of a natural color; and
again I looked down on my limbs, when one half of my frame appeared
in a state of scarlet inflammation. When I went to dress, this
had again subsided."

'Half my face was asain, an arm and a leg
wirs black.' Also the black and Enwi's patient
with amygdala lesion.
APPENDIX B

Symptom Descriptions

Racing Thoughts

I'm thinking about a million miles an hour, spinning fantastic webs. (Vonnegut, p.92)

New ideas came to me in a rush. (Coate, p.20)

The floodgates of thoughts were wide open. So jealous of each other were the thoughts that they seemed to stumble over another in their mad rush to present themselves to my reenthroned reason. (Beers, p.92)

Thoughts came so fast that much of the time I couldn't keep up with them. (Martin, p.79)

Then plan after plan started leaping through my head like a family of scatty rabbits. (Plath, p.129)

My thoughts ran with lightening-like rapidity from one subject to another. I had an exaggerated feeling of self-importance. All the problems of the universe came crowding into my mind, demanding instant discussion and solution----mental telepathy, hypnotism, wireless telegraphy, Christian Science, women's rights, and all the problems of medical science, religion and politics. (Reid, p.614)

Thought after thought came pouring in with a distinctness of apprehension, enlargement of view and faithfulness of memory, such as I never before experienced. (Anon 1854)

Ideas seem to be coming to me faster and better than ever. (Brown)

AMPHETAMINE EFFECT

My mind worked very rapidly and seemed to be able to consider one idea after the other with great speed...I felt "hot" intellectually as though I was at my keenest. (Anon, in The Speed Culture, p.88)

It seemed as though a genius in me was awakening. (J.M. in The Speed Culture, p.118)
For about two weeks before I had a flow of inspiration, relating to the world situation. At least 100 pages of manuscript were filled up. (Clark, p.464)

I began to write compulsively, and at the same time was aware that I was developing schizophrenia. (Anon 1955, p.94 in Kaplan)

I started banging out letters to old friends...Seventeen pages to Pa, twenty-one to Ma, twenty-five to sister Edie, twenty-five to sister Nan, sixteen to an old professor, and so on. I was writing like the wind. The words just came like magic and they were all just right. (Vonnegut, p.98)

...about November I started off on what seems was a crazy kind of correspondence. I have now no desire or notion to find out what I wrote to the various individuals concerned, but I know that it was all done in the nights. (Fraser's Case #2, p.143)

I wrote dozens of letters every day and many poems. Everything I wrote I was certain would go down in posterity. It seems very strange to me now that they mailed all of my letters--which I wrote to people I knew and didn't know...These letters were fragments of great beauty and made perfect sense; this is what I thought at the time. I talked incessantly to everyone and was loud and obnoxious. (Swigart, p.68)

During the latter part of that first week I wrote so many letters, so many, indeed, that I soon exhausted a liberal supply of stationery...more than once letters twenty or thirty feet long were written, and on one occasion the accumulation of two or three days of excessive productivity, when spread upon the floor, reached from one end of the corridor to another...Despite my speed, my letters were not coherent. (Beers, p.90)

Compulsively and automatically I had written a great many phrases. I had been no more than an empty channel through which had flowed unhindered a torrent of words. I had merely held a pencil. For the most part I didn't even know what I had written. (Martin, p.81)
AMPHETAMINE USE

...it creates in me this need to talk for hours...Lord help you if you ever have a friend who likes methedrine and gets on it and comes over and talks to you the entire night. (The Speed Culture, p.108)

EPILEPSY

...he "could not stop" writing and filled 30- to 40-page notebooks at a single setting.* (Waxman & Geschwind, 1975, p.1582)

* asterick indicates words are taken from a second-hand source.
Heightened Sexuality

Sex began to manifest itself in the only way it could show, by turning on itself...This phase had begun to show itself before I broke--to my horror. (Hillyer)

At this time I seemed to get into a very bad state with masturbation. It just wouldn't stop although I went to confession about it. (Barnes, p.66)

The increase in sexuality that was associated with the loss of inhibition had a terrifying impact during the early phases of the psychosis and was expressed symbolically in the experience of Hell-fire. (Anon 1955, p.92 in Kaplan)

...the sexual symptoms of the manic state seem to be the most powerful and important of all...The normal inhibitions disappear and sexual activity, instead of being placed, as in our Western Christian civilization, in opposition to religion, becomes associated with it. (Custance)

AMPHETAMINES

...immediately promoted sexual fantasies and produced erotic sensations similar to those experienced during masturbation. ...(on another patient) amphetamine markedly increased her sexual desire but delayed orgasm sometimes for as long as 9 hours. (The Speed Culture, p.100)
Heightened Meaning

Now the least incident seemed vitally significant and chance meetings with old friends were memorable moments. The aspect of things ceased to be ordinary. (Hennell, p.85,41)

In Paris, before I realized that I was sick, there was a new significance to everything. (Z. Fitzgerald quoted in Mitford, p.105)

Things people said had hidden meaning. (Case #3 in Bowers, p.143)

Everything took on special meaning for me. (Elizabethin Bowers, p.143)

...felt that there was some overwhelming significance in all this, proclaimed either by God or by Satan, and I felt that I was duty-bound to ponder on each new interest, and the more I pondered the worse it became. The walk of a stranger on the street could be a "sign" to me which I must interpret. Every face in the windows of a passing streetcar would be engraved on my mind, all of them concentrating on me and trying to pass me some sort of message. (McDonald, p.175 in Kaplan)

All life on earth related to me. (Catherine in Bowers, p.168)

For some reason the signs at that time were many...I moved down to row one, seat five and a woman pointed out to me the only unreserved seat. It was the first row the seventh seat 7+1=8. (Ellen in Bowers, p.105)

To my mind there were no such things as ordinary everyday events. Everything was charged with an immense significance. (Coate, p.35)

No matter what I read, concealed messages were revealed to me. (Martin, p.29)

I was impressed by the most routine traffic direction, seeing the tenderly guiding hand of Providence in 'slow down, bad curve ahead'
and 'Turn left for the Holland Tunnel'. (Brown)

I knew that Mind had placed signs along the road, 'Veteran's Hospital'. The Mind had put arrows on each sign and the car followed the arrows. The car could not turn left when the arrow pointed left or the car would fall apart. (Hackett)

AMPHETAMINE PSYCHOSIS

He then began to feel that everything had begun to take on enormous significance.* Everything was there for me to do something about it. (Angrist, et al., 1974, p.14)
Flash of Insight

Suddenly I seemed to see in a flash that the sacrifice of those millions of lives had not been in vain, but it was part of a great pattern. (Custance)

One by one the secrets of the universe were being disclosed to me. (Brown)

For a few minutes I believed that I understood my life as a whole and could write a clear account of it. (Martin)

I was suddenly confronted with an overwhelming conviction that I had discovered the secrets of the universe, which were rapidly being made plain with amazing lucidity. (Anon 1955 in Kaplan, p.94)

I found out the great Secret Of Nature. (Anon 1856)

Suddenly all parts of it /the church service/ made sense. (Case 3 of Bowers, p.27)

Now like the moment in doing a jigsaw puzzle when different sections link up together. Events in my own life seemed to combine with others in a larger picture. (Coate, p.96)

In my psychotic state--and somewhere I have read that this is a familiar pattern--the information and observations learned throughout a lifetime seemed to fall neatly into place as if a lifetime had provided me with, so to speak, the keys to the kingdom in which I found myself. (Massoon)

It seemed to me as if I knew everything and that in those last moments of mine the mysteries of the world were being revealed to me. (Nerval, p.119)

Formerly confusing phrases out of various scriptures came to me and each seemed perfectly beautifully clear. I became aware of a harmony and wholeness to life that had previously eluded me. Disconnectedness was very clearly illusory. (Vonnegut, p.76)
There came before my eyes an elaborate plan, very vividly for an instant but I could not reconstruct its complexity. (Hennell, p.35)

**AMPHETAMINE PSYCHOSIS**
I suddenly discovered how the world began...I began to put details together from the past and present. Now I think I know what is going to happen to this world. (Ellinwood)

**TEMPORAL LOBE EPILEPSY**
I felt that I had now found my situation in life and that this had been specially selected by God. (Dewhurst & Beard)
Premonition

I began by degrees to get a sense that some great disaster was impending...I had a sense that time was running out. (Coate, p.29)

I have the awful feeling that something awful is going to happen. (Vonnegut, p.93)

I foresaw a dreadful doom which I could not define and from which...I attempted in vain to draw away. (Perceval, p.39)

I had to prepare myself for something. But what? (Martin, pp.28-29)

A miracle had enveloped /sic/ or was soon to occur within the week. (Ellen in Bowers, p.104)

...something about to occur, some extraordinary catastrophe...little by little I brought myself to confide in my friends that the world was about to be destroyed, that planes were coming to annihilate us. (Sechhaye, p.27)

...a premonition of agony. (Hennell, p.40)

...a premonition of coming disaster...I was expecting a catastrophe, tho I could not say what. (Strinberg)

Tomorrow is the day, I told him, you are going to be set free--really free...You are going to see miracles tomorrow--one big miracle that will sweep over the whole world and change the face of it. (Brown)

...perhaps sinking human civilization was imminent. (Clark, p.464)

At last I began to imagine that the final dissolution of all things was coming on. (Anon 1856, p.30)

...a foreboding of evil. (Nerval, p.137)

The first thing I remember which seems to savor of insanity was a presentiment of some great evil which was to befall me, either in my own person or to those nearest and dearest to me. (Anon 1854, in Landis, p.12)
I began to feel that time was getting short, that the time for learning was over and time for action was near. (Catherine in Bowers, p.169)

So acute was this feeling that it was like a premonition of splendid achievement, not disaster. (Looms, p.6)

There came surging in upon me with overwhelming force a terrifying idea about a coming world catastrophe. (Boisen in Landis, p.448)

EPILEPSY
...a strong feeling of impending death.* (Sakel, 1958)

...foreboding.* (Stevens, 1958)
Blood to the Head

The blood seemed to be carried to my brain in such quantities that the skull was too small to contain the brain enclosed within. (Reid's patient in Landis, p.49)

Following the blood rushing to my head, I felt a roaring in my ears and my mind darkened. (Heveroch's patient, in Landis, p.103)

...rather curious feeling behind the eyeballs, rather as though a vast electric motor were pulsing away there. (Custance)

All my blood rushed to my head - a terrific feeling. (Milici, p.63)

AMPHETAMINE USE
(after chronic use for several weeks) then uh - you can feel your heart beat, y'know, so hard like if you put your hand on your chest, any place, you can feel your heart really pounding. And I remember...(Fiddler's case in Russo)
Headache

Tight cords passing through my head. (Anon 1850)

Iron-cap-around-the-head. (Graves)

My head feels like a tight bendage was tied around it. (Hughes in Landis, p.310)

The 'little devils' stood on both sides of the cleft and compressed my head as though in a vice. (Schreber, p.138)

There is something around my head so tight I cannot think. (Jefferson, p.193)

...clamp around my head...Suddenly I began to suffer from headache and noises in the head. (Davidson, p.60)

I had many severe headaches that were usually followed by severe hemorrhage. (Fraser Case #4, p.148)

...almost constant headache. (Hennell, p.27)

The headaches came with a small bubble of pain over my right ear and the bubble grew like a goiter inside me until it was as though everything inside my head was being forced out through my eyes. (Hackett)

I was often dizzy and had headaches...terrible tension and many headaches. (Milici, p.61)

TEMPORAL LOBE EPILEPSY

...intense headaches and chronic noises in the head.* (Dewhurst & Beard)

(re Libermann case)...violent headaches and dizzy spells.* (Dewhurst)

AMPHETAMINE PSYCHOSIS

all became thirsty and developed throbbing headaches.* (Bell, 1973, p.36)
Vertigo

...I was a prey to vertigo, at moments my brain seemed to be deranged. (Van Wyck Brooks, p.85)

...full of vertigo, with an increasing sound in my ears. (Fitzgerald in Mitford, p.216)

I was often dizzy and had headaches. (Milici, p.63, graphocatharsis)

The Quai Voltaire rocked under my feet which caused me much surprise. The motion continued through the courtyard of the Tuilleries and on through L'Avenue de l'Opera. (Strinberg)

I did not take notice of what she was saying because of a dizziness, a feeling of swaying backwards and forwards. (Row's patient, p.194)

I reeled, and everything turned about me in a circle. (Heveroch's patient in Landis, p.103)
General Sounds in the Ear

There is a terrible ringing and popping in my head as of a thousand insects at a little distance. (Hughes in Landis, p. 60)

...with an increasing sound in my ears. (Z. Fitzgerald in Mitford, p. 216)

The drone of sound was a thousand bees (p. 4). A roaring filled her ears; the waters of the brook roared around her. (p. 3) (Kroner, Diagnosis M-D)

But you know there was a thing which I heard all the time while I was insane and that was like a ringing of the ears, very strong ringing, you know. And once in the great while when I am very tired or something, even now if I try I can hear a ringing. (Kroner in interview with C. James, in Unfinished as a person.)

...a rushing kind of noise. (Trosse in Landis, p. 26)

...a recurrent crackling noise in the wall...time and time it woke me, as I was about to go to sleep (p. 64)...infinitely monotonous and doleful humming noise. (Schreber, p. 100)

...beating of what seemed to be huge wings in the ears. (Davidson)

...the sound beating all around my head of wings. (Vonnegut, p. 84)

...a faint faraway but insistent ringing in his ears for many seconds, even several minutes. (Nolan)

The rushing, roaring sound one hears in one's head when seated in an express train speeding through a tunnel. (Anon 1932 in Landis)

Behind the far wall a discordant hum, like static, rose and filled the apartment. (O'Brian)

...a bell tolling all day. (Fraser #1, p. 140)

...sounds as of the clanking of iron and the breathing of great forge bellows and the force of flames. (Perceval, p. 29)
Then I heard the sounds of harmony, and a noise of chains, and the voices of men outside the house. (Anon 1856, p.33)

There were strange buzzing and hissing noises going off in my ears... (Swigart, p.75)

I heard constant reverberations like thunder from the horizon. I can understand the superstition of ancient Rome about "thunder on the left" I heard the galloping of a horse's hoofs apparently outside on the hard-paved streets...a constant clatter, furious and unwearying, ever present in my waking moments. Again and again I heard it. (Looms, pp.33, 53)

AMPHETAMINE PSYCHOSIS
They tried to gas me. I could hear the hissing. (Ellinwood, p.140)

TEMPORAL LOBE EPILEPSY
...chronic noises in the head like 'a number of rushing waterfalls within my brain; while in other parts, drowned by the noise of the water, are the voices of birds singing and whistling. (Dewhurst & Beard)
Thoughts-Out-Loud

One of the 'pursuers' repeated my thoughts aloud, verbatim. (White in Kaplan, p.135)

Her brain continued to tick out sentences like a typewriter, word after word heard clearly by her. (Coursesn, p.10)

I hear my silent thought sounded in steam, and whenever there is a noise it is liable to be echoed. (Flint's patient - known organic damage)

...thought-out-loud has formed one of the two major factors of my psychotic symptomatology. (Lang)

The voice produced by my thought sounded to my ears as loud, and in every respect the same, as my ordinary speaking voice. (Thelmar)

Often I find that my thoughts are spoken /by others/. (Milici, p.57)

When I say something, it seems as if I hear it being repeated in the distance. (Bleuler, p.99)

Whatever I think, the bells ring it out, the dogs bark it, the birds sing it, such a thing has never happened before in this whole world. (in Bleuler, p.99)

AMPHETAMINE PSYCHOSIS

...heard his own thoughts spoken aloud.* (Bell, 1965, p.704)
Hallucination of Voices

All of these souls spoke to me as 'voices' more or less at the same time without one knowing of the presence of others. Everyone who realizes that all this is not the morbid offspring of my fantasy, will be able to appreciate the windy turmoil they causes in my head. (Schreber, p.72)

Voices like the voices of fairies or females--very beautiful--very small, and with a rapidity I cannot describe, began counting inside me. (Perceval)

...stilted unrelated phrases repeating, 'and we shall see', or 'Battle of Trafalgar' or 'Yes Miss'. (p.38)...Piercing cries began to hammer in my head. Their unexpectedness made me jump. The noises, localized on the right side, drove me to stop up my ears. But I readily distinguished them from the noises of reality. I heard them without hearing them...and recognized that they rose within me. (Schreber, p.42)

Simple auditory hallucinations...consisted of the hearing of a voice speaking from a point slightly above my ear. The voice spoke clearly in a soothing monotone. (Lang, 1938, p.1089)

...a faint faraway but insistent ringing is in his ears for many seconds, even several minutes, with taunting or tantalizing or appealing voices interjected and finally coming in a great volume of objurgation or denunciation or prohibition, accompanied by the most awful bloodcurdling threats to the victim and all he holds dear. (Nolan in Landis, p.192)

The sharp static mellowed into speech. (O'Brian)

...having earphones on and hearing music and voices. (Fraser #1, p.141)

I often heard the murmuring of voices and, thinking they were talking about me, I would go and investigate, only to find an empty room. (Fraser #4, p.148)
Sometimes I could hear my name spoken softly. When I turned there was no one near. (Hackett)

Many, many voices did I hear. My mind was constantly filled with them. (Milici, p.63)

At various times, while my mind was hovering between reason and blank madness, voices from an unseen world came to my consciousness. The sounds, at first rhythmically unintelligible, swelled on the air to a crescendo of frenzied but perfect articulation. (Looms, p.62)

Siren-like maidens voices sounded within the entrance, calling and cooing names which must be their lovers...there were muffled drumming undertones, as in an electric train, only more soft and subtle; these seemed to take up the ends of sentences and to echo the words with an alternating mechanical reflex, 'a broken life', til at last it became as the croaking of frogs... (Hennell, p.67)

AMPHETAMINE PSYCHOSIS
...hearing a strange voice that interrupted his thoughts. (Bell, 1965, p.704)
Hallucination of Music

I was astonished to hear the most wonderful singing I have ever heard in my life... There were a number of voices, both men and women. ...it was so wonderful that I felt a curious feeling of pain mingled with the intense pleasure it gave me, I could hardly bear it. (Davidson, p.70)

There was music everywhere, and rhythm and beauty. (Boisen in Kaplan, p.119)

I sometimes heard music at a distance. (Anon 1850)

The ceiling seemed raised and the entire room filled with music. (Boisen in Kaplan, p.119)

...a burst of music--ceased suddenly. (E. Thelmar)

...hearing music and voices. (Fraser #1, p.141)

Also I heard that song 'Ramona' being sung by all my relations. (Fraser #3, p.147)

I heard a chorus of great beauty. The voices seemed to come from far away... It was the music of the old, half-forgotten 'Annie Lisle.' But why was my name enunciated so distinctly in the refrain? (Looms, pp.63-63)

Then at that moment, she heard an air of music, chords, clear and harmonious, their tone and tune swelling, surrounding, encasing like atmosphere. (Kroner, p.10)

TEMPORAL LOBE EPILEPSY

...hearing divine and angelic voices for two days... admitted to hearing music and voices.* (Dewhurst & Beard)
Attack/Self-Attack

While, for example, I was preparing to do some typing, suddenly, without any warning, a force, which was not an impulse but rather resembling a command, ordered me to burn my right hand or the building in which I was. (Sechehaye, p.41)

The principle incident he remembered was that of walking down a road...a former acquaintance of his passed on bicycle, and A. recollects my having rushed up and kicked the bicycle.* Later while on a train, sitting with an official 'I walked cross the compartment and assaulted him.' (Anon 1917, p.569)

I am a slightly built fellow but I damn near tore that motel unit apart with my bare hands and it took about five state police to subdue me. (Massoon)

They ('auditory'hallucinatory presences) add strength to my limbs. I put my hand on a man's shoulder, and they make me hold with a added firmness to hurt him...I keep from sharp instruments because for mischief they turn it on my hand. They make a needle prick me, and if I had it in my hand, they might make me run against a mortal with it. They give me the sensation of my digging my nails into my palm...If I put my hand to my head he makes me strike myself. It does not matter with the soft hand, but there might be a hammer in it, and if I take a stick he crashes it on my foot. (Anon, Expiation Process)

Marie! I had not meant to hit her. I was confused. The will to defend myself and others was gone. I had served the Mind myself. I heard the sound of the knife falling on the wood of the floor. (Hackett, p.73)

I was awakened by a terrific crash. There followed the jingling rattle of broken glass. I suddenly discovered my head and one arm out of a top pane of the bedroom window, my body held in the frame that crossed in the middle. Someone grabbed my legs and called for help. (Looms, p.57)
I put my right fist deliberately through the thick stained-glass window of his consulting room. (Davidson, p.46)

AMPHETAMINE PSYCHOSIS
I then got up on my elbow and shot my boss who was driving. (Ellinwood, 1970, p.139)

He ran down the steps of the hotel with an open penknife in his hand.* (Angrist, et al., 1974, p.15)

I wanted to do something bad or destructive. (Bell, 1973, p.38)
Flight

I was 'forced' by voices to walk miles and miles about the city until my feet were blistered. (McDonald in Kaplan, p.175)

The left side of my head tingled, my body grew warm and I felt like running. (Stephan)

I ran barefooted through the streets, spat at members of my family, exposed myself. (Krim in Kaplan, p.63)

I walked twice around London. (Anon 1849)

I wandered over miles of ground, imagining that I was forbidden to sit down or stand still. (Anon 1850 in Landis)

In a panic I ran like hell toward the railroad station...I hid behind the boulder, and after a time continued running. (Milici, p.63)

I wanted to run. I insisted that I must keep in training. (Looms, p.60)

I was seized with an uncontrollable impulse to run, run, run...I don't know where I went, my mind was spinning as tho out of control—but I kept running until I could run no more. (Stephan, p.18)

...she had been running in great terror from something. (Greenberg, p.63)

AMPHETAMINE PSYCHOSIS
...a signal to either take off my clothes and jump over the wall. (Angrist, et al., 1974, p.14)

EPILEPSY
...dull noises in the ears and irresistible wandering, without object about the streets.* (Echevarria's case of Thuricet)
Nudity

All at once the command came 'Take off your clothes and walk'. Without the slightest hesitation I sat up, and took off my clothes. I walked to the door and went out. (Clark, p.468)

At some point I gave up my clothing. It was just too sticky and confining, almost like drowning. No clothes would have maybe been OK if I hadn't taken into my head to make a break for it. Andre and Simon tackled me before I got very far. (Vonnegut, p.118)

I took off my terrestrial garments and scattered them about me. (Nerval, p.120)

...I would come out of the bedroom without any clothes on. My mother said, 'Haven't you got any shame?' I shouldn't have done that, should I. I sat at the table one day with my fly unbuttoned and my penis exposed. (Milici, p.64)

But the voice still continued. Yet more humble: Yet more humble. In compliance with it I proceeded to pluck down my stockings, and to kneel upon my bare knees. But the same awful Voice still sounding in mine ears, I proceeded to pluck off my stockings, and then my hose, and my Doublet; and as I was thus unclothing myself, I had a strong internal impression, that all was well done, and a full compliance with the Design of the Voice. (Trosse in Landis pp.26-27)

...dancing naked in front of a mirror. (Coate, p.35)

AMPHETAMINE PSYCHOSIS

...a signal to either take off my clothes or jump over the wall. (Sean in Angrist, et al., 1974, p.14)
Loss of Memory for Episode

I would 'come to' from time to time and realize that I was walking, half-stumbling through the woods. (Vonnegut, p.84)

The next thing I remember was lying in the tub with my head resting on a small straw-filled canvas covered pillow. I was not at all surprised to find myself in the tubs. I could vaguely remember going haywire, but I couldn't remember any of the subsequent details. (Alper)

They said I first yelled 'fire' but I have no recollection of anything until I found myself partly through the window. (Looms, p.58)

...she suddenly realized she had lost another day somehow. In an unexplicable way time had pleated up again, and it was another time and she was being chased by a policeman. (Greenberg, p.63)

...my aggressive behavior occurred where I had lost conscious control and I have total amnesia concerning such episodes. (Anon 1955 in Kaplan, p.100)
Compulsive Posture and Movement

If I could provide some kind of counterpoise, all might be well. I stood in a passage swinging my arms like pendulums until the danger point had passed. (Coate, pp.34-35)

The spirit seemed to light on my pillow by my right ear, and to command my body. I was placed in a fatiguing attitude, resting on my feet, my knees drawn up and on my head, and made to swing my body from side to side without ceasing. (Perceval, p.29)

The outward-opening, wooden storm door stood widely ajar. This I approached with earnest dignity, braced my body there, and upraised my arms against it in final benediction and crucifixion. (Dearborn, p.91)

Somewhere hereabouts the idea got about that I could not so anything except when told to do it, in detail. I couldn't walk unless told to do it, if merely told to walk, I had to be told to lift my leg, put it forward and down, lift up my right leg... (Clark, p.469)

When we had reached a junction of three streets, however, I refused to go any further. It seemed that my friend was employing super-human strength to make me move. (Nerval, p.119)

He /pursuer/ likes to hold limbs in fixed positions, or to keep them still when they are about to be moved. He keeps me in a position of standing with my hands and arms in a position of discomfort. He gets it from my brain that it was done of me at school. (Anon 1927, p.237)

...arms extended...a kind of catalepsy. (Anon 1854)

I gave up the struggle, and lay back perfectly motionless on the pillow, staring straight into vacancy with wide-open, glassy eyes that felt to me as if they were half out of their sockets. (Thelmar)
At first I felt obliged to get up and walk...singing a requiem without pause I marched 3 steps forward and 3 steps backward, an automatism that wearied me exceedingly and which I wished someone would help me break. (Sechehaye, pp.61-61)

I felt I was being pulled back and prevented from going on by some invisible force. I had never felt this before, except in a nightmare, and it terrified me. (Davidson, p.61)

AMPHETAMINE PSYCHOSIS
...bizarre postures.* (Young, et al.)
Loss of Depth

Objects appeared to be far away and flat. (Heveroch's patient in Landis)

Everything seemed two-dimensional. (Stephan)

I did not know whether to take the streets of Leipzig through which I traveled as only theatre props, perhaps in the fashion in which Prince Potempkin is said to have put them up for Empress Catherine II of Russia during her travels through the desolate country. (Schreber, p.102)

The trees and hedges were of cardboard, placed here and there, like stage accessories. (Sechhaye, p.28)

Deborah had looked about and found she could not see except in outlines, gray against gray, and with no depth, but flatly like a picture. (Greenberg, p.20)

I see things flat. Whenever there is a sudden change I see it flat. That's why I'm reluctant to go forward. It's as if there were a wall there and I would walk into it. There's no depth. (Chapman Case #25, p.230)
Loss of Size Constancy - Micropsia and Macropsia

Standing at one end of the rope, she had seemed smaller, but the nearer we approached each other, the taller she grew, the more she swelled in size...the enlarging image of my friend...They \( \text{the pupils} \) looked to me like ants under a bright light. Then the room became enormous, disproportionate, the walls smooth and shining. (Sechehaye, pp.20,21,25)

I watched my mother grow smaller and smaller until she disappeared into the door of Dr. Gordon's office. Then I watched her grow larger and larger as she came back to the car. (Plath, p.143)

I was aware before I left Dr. Fox's that the decision (whereby the stature of a person appeared to change) arose from a defective use of the visual organs. (Perceval)

I was sitting listening to another person and suddenly the other person became smaller and then larger and then he seemed to get smaller again. (Chapman #15, p.229)

Everything looked strange and far away. (Hillyer, p.99)

The buildings keep jumping out at me when I go out. They move towards me like they want to crush me. (Stephan, p.63)

They \( \text{the brickwork} \) vanished away to almost nothing, in exaggerated perspective. (Hennell, p.45)

These words from an ant-like guard caused me keen uneasiness. (Hennell, p.87)

The objects of the surrounding appears to be far away--a short section of the road looked as though it stretched for miles. Then again everything looked extremely small*--the 'lake did not seem any larger than the top of this desk.' (Angyal's patient, p.159)

Carrie's ghost looked smaller than Carrie herself had been...She found herself 'here'. 'Here' was the cubicle enlarged and the light dim... (Kroner, p.2,7)
Everything I looked at seemed bright and extremely tiny. (Plath, p.145)

The ceiling seemed raised... (Boisen, p.119)

It appeared to me as if I had been transported into an infinite distance, and therefore, I said repeatedly, I am in the far, far distance...people and objects diminished in size. (Heveroch's patient in Landis, p.103)
Loss of Motion Constancy

Pupils and teachers were puppets without cause...the teacher, too, was a grotesque jack-in-the-box. (Secheyaye, p.24)

Most of the nurses were like marionettes on a string. (Anon 1955, p.102)

People were indeed moving, but with small bird-like gestures. (Plath, p.149)

The students and my colleagues fled, and their movements were to my sick eyes, like those of mechanical toys...automatic, artificial, mesmerized. (Dearborn, p.91)

The day was drugged to insensibility, its persons and its conventions puppet-like and unreal. (Hennell, p.89)
Color Change

A sulphurous light. (Plath, p.121)

The ordinary electric lights in the ward...are not exactly brighter, but deeper, more intense, perhaps more ruddy than usual. (Custance, in Kaplan, p.45)

Suddenly last Spring I began to see all red when I worked or I saw no colors...Colors were infinite, part of the air, and not restricted by the lines that encompassed them. (Fitzgerald in Mitford, pp.215,205)

Everything was trembling and glowing with an eerie light. (Vonnegut, p.85)

Even the sun was off-color for me... (Van Wyck Brooks, p.84)

...sometimes I could hardly see properly on account of the bright splashes of color that came before my eyes. (Fraser #4, p.148)

Brickwork was excessively, dangerously red. (Hennell, p.45)

Just after I got home I attended a mission with my father and I saw the priest grow all red all over like a devil...(Milici, p.64)

I never saw colors so strongly not so persistently: red frequently at first, blues and greens intermixed, but later a restful blue with a greeny-yellow edge...if I looked across the room it was smoky. When I looked at B. I saw colors. (Row's patient, 1914, p.194)

Everything was white - it must be nurses or the winter snow. (Greenberg, p.74)

She lost her ability to see colors. (Greenberg, p.118)
Change of Shape

Street lamps seemed to be staggering slowly, swaying like blossoms on slow bending stems... (Kroner, p.8)

Furrowed fields seemed to boil like pitch. (Hennell, p.50)

...[that] their forms seemed to dilate and contract did, I have no doubt, contribute to a delusion that I was surrounded by spiritual bodies---and I myself in such a body. (Perceval, p.285)
Fatigue

I felt a gradual relaxation of my muscular system accompanied with a dreadful moral torpor and lethargy growing on me. (Perceval, p.43)

When madness comes, a strange anaesthesia follows. A sleep akin to death but more mysterious. A rest from the dim regions of the unconscious—a state which is neither death nor living. (Jefferson, in Kaplan, p.30)

Sometimes my limbs seemed heavy and stuck. It seemed I was a little animal, going to sleep for the winter. (Barnes, p.110)

A kind of stupor settled over me like a fog, and while there were no longer lengthy periods of complete oblivion yet most of the time I sensed things dimly. The stupor arose, I think, very largely from physical exhaustion; I lay for days and hours more dead than alive, wanting only to be undisturbed. (Hillyer,)

...stuporous upon my bed. (Anon 1917)

...apathetic, idle, no interest in anything, unable to work. (Strinberg, p.100)

I did not raise a finger to find work or to help my family. For the greater part of the day I sat in a chair, gazing fixedly before me, or plunged in the absorbed contemplation of a tiny spot...Only a strong force could pull me from it and I dragged myself away to get ready to go to Mama. But what weariness! (Sechehaye, p.56)
Diminished Sensations

I cracked open a peanut from the ten cent bag I had bought to feed the pigeons and ate it. It tasted dead, like a bit of old tree bark. (Plath, p.144)

None of my food had its usual flavor. (Beers, p.30)

The nurse said, Jane, you don't even give a twinge when I put in the stitches. (Hillyer, p.95)

A numbness and a paralysis starting in the feet, and creeping slowly upwards to the neck. (Dearborn, p.91)
Music Spasms

...my right leg went into spasms. (Coate, p.57)

tetanic spasms... (Anon 1854)

About this time I commenced to notice something very strange, extraordinary and uncanny. I experienced muscular twitchings in different places. First the muscles of one arm (or leg) would twitch, then the other. These muscular twitchings were not haphazard, but methodical. (White in Kaplan, p.141)
Sensation of Electricity

There was a strong, sudden feeling as of a strong current running through from above downwards. It lasted about 6 seconds and left me feeling dehydrated. (Coate, p.31)

...I was possessed of electrical forces... (Nerval, p.121)

I thought that I was the living, intelligent principle of electricity, and that I had power to call into my own person all the electric fluid in the world. (Anon 1856, p.32)
Odor

At Babel there had been a very horrible nauseating smell, which I now think was no worse than stale tobacco smoke... But it had then seemed to arise from smoked of poisoned corpses. (Hennell, p.174)

A became convinced an unpleasant odor emanated from me. After shock treatment God in Heaven, I'm well--Also, the smell is gone, the dreadful smell I thought I had. I don't think it was ever there. I think I imagined it. (McCall)

...a soot-like smell... so strong it filled the entire room. (Schreber, p.98)

I frequently smelt strange odors that were really very pleasant. (Fraser's Case #4, p.149)

...have been plagued for a couple of months by a smell of celery. Everything tastes and smells of celery (p.18)... The strange smell if incense manifested itself today, more intensely than usual. The idea struck me that it is her (B). I sniffed her letter, it smelled of incense. So it is her. But the smell has become hideous. At first it was good, uplifting, then it smelled of madness and witchcraft. Finally it became nauseating and terrifying. (Strinberg)

Everything smelled of tin, or was it something else? (Peters)

I didn't like the smell coming from myself. (Milici, p.62)

There was a timbre to the odor of that perspiration which was totally unfamiliar... Truly something had died and was decomposing. (Jefferson, p.221)

Once I smelled burning rubber very distinctly, and on two occasions my room was filled with perfume. (Reid)

...the odor of blood... A very thick sweet odor, like the last scent of the totally decayed dead. (Kroner, pp.5,8)
...the pursuers caused chemical odors to penetrate into the room. (Courtney)

Shortly thereafter I smelled the unmistakable odor of sulphur in the police car--strong, penetrating--an olfactory hallucination, I suppose. (Massoon)

Such a peculiar smell...the only thing I can think of that it is like is the color of the paper. A yellow smell. (Gilman)

It smells like ether...It smells like death. (Bender's patient)

Then the room was filled with the odor of brimstone. (Boisen in Kaplan, p.130)

She has come out of Hell, and has both the odor of smoke and scorched flesh upon her. (Jefferson)

Does not the devil lurk in one's nasal passages?...the odor of brimstone, burning human flesh and other pestilential fumes which seemed to assail me. (Beers)

The odor of corruption still clung to me. (McCall)

It smelled like rotting human flesh...Its really all psychological. That burning flesh smell is really in your mind. (Stephan, p.154)

...the appearance of an odor of sulphur in connection with a threat of damnation to hell by the thought-out-loud. (Lang, 1938, p.1096)

The smell of her burnt-up self was always in her nostrils--charred flesh and hair, clothing, and the rubber and leather of shoes. (Greenberg, p.118)

...the smell of burning...(p.46). the water smelt as if it had come from some dark, damp cellar full of putrifying corpses...a sulphurous odor hung about me all the time. (Davidson)
TUMORS
...horrid smell of dirty burning stuff.* (tumor of right tempero-sphenoidal, pressing uncus. Jackson 1958)

...dreadful disagreeable smell.* (glioma of left tempero-sphenoidal lobe. Jackson 1958)

...odor of smoke or of foetid character.* (pachymeningitis of right ulcerate. Jackson 1958)

STIMULATION
"The odor from stimulation of the olfactory bulb or uncus is almost invariably a disagreeable one. It may be likened to the smell of burning rubber or some other stench.* (Penfield, p.109)

EPILEPSY
odor "like burning rubber". (in Waxman & Geschwind)

AMPHEMATINE PSYCHOSIS
I passed out due to the gas. (Ellinwood, 1970)

I can't say more than that...I recollect the odor of blood...I presume there was some disturbance of olfactory nerves, for two or three times in the succeeding days I was apt to leave the sharp impression of odors.
Sharp Pain

It was as if someone had given me a blow with a club in the back of the head. (Menninger's patient in Landis, p.35)

If it is possible that a heavy blow could light on the brain without touching the skull, such was the sensation I felt. (Cowper)

Every afternoon I was seized by the most violent paroxysm of pain which racked every nerve in my body. (Reid)

...they /the pains/ have ranged from slight irritations to agonies (p.1094)... a series of spasms of pains. Commonly, thought, the pains start without immediate warning...They have taken place at all times of day, with the greatest frequency at night while I am lying down on a bed. (Lang, 1938, p.1096)

They give me a pain and twist my toes. They give me a feeling of crushing in my shoulder blades. It is willful strength in the form of pains. They do this because they have got from me what I have seen, a deformed and twisted beggar huddled up in the street. They struck me in Paris for the first time; they struck me in the form of a battery. He showed this form of strength because he knew I had put coins in a machine which gives electric shocks...I have the sensation of being struck in the flesh or the bones. They give me the sensation of being crumpled up; the bones and all have that feeling...(Anon 1917, p.234)

...a grating and numbing pain...(Hennell)

...shooting pains in the abdomen...my epigastrum was nearly shot to pieces. (Strinberg)

Often, again, I experience a feeling as if my whole body was pierced with needles. (Courtney in Landis, p.51)

The stroke from the tumor made her writhe on the floor. (Greenberg, pp.56-57)

/"the rays operated"/ the head-compression machine...the compression of-the-chest miracles. (Schreber, pp.138)
Visual Hallucinations

Small dots
About this period I began to see objects like gnats floating before my eyes...thought they were wicked spirits. (Anon 1850)

The room now appeared to me to be full of lighted candles. (Southcott in Landis, p.115)

LSD PSYCHOSIS
There was a swarm of insect-like points of light and darkness which moved across the visual field. (Lilly, p.27)

Circles
Immense circles took shape in infinitely like orbs formed by water when something falls in and disturbs it. (Nerval, p.119)

I saw a fireball--God was trying to send a message. (Lang)

A small bright ball of fire, perhaps of a quarter of an inch diameter came down...hung suspended in midair for a few seconds and then went out. A very short time afterwards there came a most wonderful and immense solid ball of fire, as large as a crickey ball, which remained in the air for some time, and then returned to where it came from. (Davidson, p.239)

Circles, ovals, squares and dark broad streaks of it dark light covering the sky for miles. (Milici)

Flashes of Lights
A stroke of lightening appears to pierce the air on my right. (Perceval, p.47)

Light hurled tactile stabbing rays. (Greenberg, p.163)

...a scythe-like ray of steely blue light. (Davidson, p.87)

All of a sudden the most brilliant light darted into the room and
filled me with astonishment. (Anon 1854)

At an early stage the appearance of colored flashes of light was common. (Lang, 1938, p.1093)

I was struck by a bolt of jagged yellow lightening which pierced my skull. It exploded in the center of my head and the room appeared. (Peters)

**TEMPORAL LOBE EPILEPSY**

...he saw a light going around the room which stopped just over his head.* (in Dewhurst & Beard)

**Curling Pattern**

He complained of a film as of curling smoke or effervescent champagne always before his eyes. * (Bragman on Rossetti)

**AMPHE TAMINE PSYCHOSIS**

...an abundance of curling smoke rings. (The Speed Culture)

**Undefined Shapes**

...watery looking bodies float down from the sky. (Davidson, p.64)

...bear-like shapes. (Schreber, p.87)

...a form like that of a deceased person...a phantasm. (Ferriar, in Landis, p.114)

**Lilliputian Figures**

My attention was caught by some specks which were moving on a small patch of the cream-painted walls. These at first looked like spiders or insects, but though they were ant-like, closer attention revealed little black men...they moved. (Hennell, p.205)

...hundreds of agitated figures chattering and gesticulating. (Custance)

...yellow men, half-size. (Schreber)
Little men--tiny figures in human form, perhaps only a few inches (?) in height. A hundred little men and women about 6 inches high. These personages gradually disappeared at the end of a half hour. (Leroy in Landis)

...a creature 2 feet tall. (Jefferson, p.320)

**Procession of Figures**

...processions of white-robed figures. (Clark, p.483)

The procession of small newly created souls...a hundred little souls, saw them fly forth. (Kroner, p.7)

I also saw visions of very heavenly forms (white) in procession. (Perceval, p.50)

Before me battalions in great coats passed ominously and interminably. (Sechehaye, p.63)

**General Figures**

I can see her out every one of my windows. It is the same woman. I know, for she is always creeping and most women do not creep in daylight...creeping as fast as a cloud shadow in a high wind. (Gilman)

The apparition of a woman dressed in a white dress seemed to be sliding down the street ahead of me one night before drifting into the air. The figure was definitely outlined; it was opaque...the figure moved without any sound. (Lang, 1938, p.1093)

**Objects**

A spray of capital letters. (Cecil in Kaplan, p.215)

**AMPHETAMINE PSYCHOSIS**

He said he saw some of the words that came into his mind written in white letters.* (Bell, 1973, p.38)

...having seen two ladders, yellow in color, extending over him. (Bell, 1973, p.38)
Full Scenes

...the most marvelous living and moving picture... The only way I can describe it is as a picture--though, of course, there was no frame around it--and it was living and moving, and the richness of the color and light was beyond all description... (Davidson, p.240)

I found myself standing somewhere on a pebbly beach at dawn... I felt the crunch of pebbles under my feet in walking, and saw a small frog stretch his legs in a disappearing streak. (Jefferson, p.217)

Cascade

...a flood of mental pictures as though an album was unfolding. (Boisen)

...and then suddenly, I was overcome by a whole cascade of visions of black and white pictures. (Winkler's patient, in Landis, p.37)
Hallucinations of Touch and Position

I felt the free swing of my arms as I flung them over my head. I felt the cool bed-rails against them and felt the grasp of my fingers in each hand as I clasped them. That was the eeriest sensation of all—knowing my hands were tied securely in a straitjacket, yet feeling them free and flung back over my head. (Jefferson, p. 220)

I poised on the edge of the pier. Then I tensed and jumped off. I felt myself falling through the air. I looked down to see how close I was getting to the water. I found that in actuality I had never jumped and was still standing stolidly on the pier, (Lang, 1938, p. 1096)

My body did often seem apart, a leg or an arm could be the other side of the room. (Barnes, p. 110)
Loss of Consciousness

Then followed a period of unconsciousness, broken here and there. (Anon. 1856, p.33)

I went out like a gutted candle. I 'came to' a third time in a new place. (Hillyer, p.73)

Still blacking out from time, body not in much control, voices talking up a storm. (Vonnegut, p.174)

Then I got back in bed and completely lost consciousness. The next thing I remember was suddenly coming to--long after I had been called. (E. Thelmar)

The last sound I remember was the crack of my skull on the hard, brittle floor. (Swigart, p.76)

I remember trying to get the saddle over him a horse and the next thing I felt was water dashed on my head by my mother's old gardener in an effort to revive me. I had fainted for a little over a quarter of an hour. (Custance, p.18)

I had a fainting spell and almost slumped over in the path of an oncoming train. (Stephan, p.18)

I lost consciousness again. (Coate, p.57)

AMPHETAMINE PSYCHOSIS

I got nauseated and passed out. (Ellinwood, 1970, p.139)
APPENDIX C

Descriptions of Symptoms Not Included in Study

Time

I was losing touch with the outside world and lost my sense of time. (Bowers Case #3, p.27)

Time has gotten very strange. Things whizzed and whirred about me with great speed and confusion. Then everything would stop. (Vonnegut, p.84)

...I had developed a sense of the foreshortening of time...I had a sense time was running out. My own tempo was much faster than that of the people around me. (Coate, pp.29,103)

The ideas of space and time, which are the fundamental conditions of all thoughts in rational minds, become confused, or wholly lost. (Anon 1856, p.30)

Time seemed to stop altogether; the atmosphere was breathless, suspended and dead quiet. (Dearborn, p.91)

Time had grown very stagnant. (Hennell)

Everything was slow, disjointed. (Barnes, p.102)

I sensed with alarm that time was shortening. (Martin, p.28)
Insomnia

These subjective changes were associated with...acute insomnia. (Bowers Case #5, p.29)

The first symptom of insanity in my own case was wont of sleep. I was myself conscious of this need of natural slumber as well as my friends, and tried in vain to obtain it from narcotics. (Anon 1856, p.30)

The night before the break I suffered endless hours of insomnia... (Dearborn, p.90)

Even with the green sedation I didn't sleep more than two hours. (Stephan, p.92)

For several weeks I believe I did not sleep for more than two or three hours a night. (Beers, p.154 in Kaplan)

I worked on my plans diligently, frequently staying up without sleep for more than 48 hours at a time until I was able to work for 64 hours straight without a break, except to drink several glasses of milk to keep me going. (Alper)

My nights were sleepless. I lay with dry, staring eyes gazing into space. (Reid, p.613)
Axel was here this evening. I told him that the food I have been given was so filthy I could not eat it...eighteen days of fasting and abstinence. (Strinberg, pp.99-100)

...no sense of hunger or thought of food though I had not eaten in thirty hours. (Clark, p.468)

After six weeks I still had no appetite, still forced food down. (Stephan, p.114)

My friends were alarmed. Mental illness being a myth and a schiz a sane response to an insane world was all well and good, but this kid's about to starve to death. As we found out later, death by starvation wasn't a farfetched possibility. According to the doctors at the hospital, another week or two would have done the trick. (Vonnegut, p.119)

Although I had, during the first episode, no difficulty eating, even tended to eat compulsively, during the last week or so, while under sedation, I developed an aversion to food. This was accompanied by vomiting. I got the idea that in taking food I was in a sense eating the body of my youngest child. (Anon 1955, p.106 in Kaplan)

A little later he brought me food, an unusually generous portion, but I refused to eat it because I thought it was drugged. (Boisen, p.122 in Kaplan)

I was, however, eating little; the System's orders forbade me to eat. (Sechehaye, p.53)

She had been willing to drink but had not eaten. When food was offered, she would say, "Do the dead have to be fed?" (Kroner, p.13)

About this time I refused to drink water, because it was unholy because God's flooding the world was a sin...I refused to drink it, though thirsty...I very soon got the idea that I shouldn't
eat meat and I refused to do so for a while. (Clark, p.476)

It was my duty to die of hunger and in this way sacrifice myself for God. (Schreber, p.76)

I threw the wedding ring on the table once more because I felt my wife was wanting meat...I felt better since I have not eaten meat. It arouses lecherous feelings. (Nijinsky, p.77)

I had the feeling that I did not deserve the food that was brought to me though it was very welcome. (Fraser's Case #3, p.141)

I was tube-fed for I wouldn't eat. (Milici, p.65)

Amphetamine Psychosis

...it doesn't only take away your appetite but you look at food and it looks disgusting like, and you can't get it down your throat. (Fiddler's case in Russo)
Change of Taste

The crazy taste was in the back of my mouth. (Vonnegut, p.165)

If this don't stop, I said, referring to the bitter taste in my mouth and the pressure like a wire cage round my head, then I am ill: yes, very likely I am destroyed. (Virginia Woolf, p.154)

Like a taste or a fragrance in my mouth, as of roses or fruits... (later like a taste from hell of brass and corpses. (Strinberg)
Thoughts concerning the church ran through my mind, thoughts of becoming Pope, President... Patients there resembled people at home. One looked like my father and another like my uncle... (Milici, p.66)

In each person I could see a resemblance to persons I had known, or to the principles of victims of the crimes with which I imagined myself charged. (Bowers, p.53)

Soon I began to make a quiet study of the faces and habits of the patients with whom I lived, and the more I did this, the more certain I became that they represented various biblical characters, to perfection. (Davidson, p.60)

The other patients were always members of my own family gradually coming to life... Patients in other beds were also my relations usually too dead to be recognizable. However somewhere in my wandering I came upon my brother Brian who actually is in America and whom I have not seen in 13 years. (Fraser #2, p.144)

Nearly everyone whom I saw appeared to me as being either relations or friends of well-known people. For a long time I thought that Sister was the Bishop of London, that nearly all the doctors were uncles of mine, and most of the nurses aunts or cousins. (Fraser #1, p.141)

... almost all the patients in the Asylum, that is to say at least several dozen human beings, looked like persons who had been more or less close to me in my life. (Schreber, p.104)

One of the attendants I took to be my brother, though he resembled him but slightly; another was an intimate friend, while another was an implacable enemy. (Anon 1856, p.34)

Besides these, the youngest Mrs. Fox was pointed out to me as repentence; two of the housekeepers as my mother, and two servant girls, one as a sister and a cousin, and one as my deceased sister.
I was told that the reason I did not recognize them was that I could not or would not, for sin. And certainly the countenances of those about me changed in a wonderful manner. And I did at one time, amongst the patients, see one of my aunts, who was many miles away; and on another occasion, I saw in a patient who was introduced into the common room in the summer, an old school-fellow so like him, that I called out his name in surprise; when the vision changed, and I saw him walking in other features, and then again in new ones. (Perceval, p.73)

Amphetamine Psychosis

...attempting to cope with the feeling that 'everything is strange' by stating that the staff members were people very familiar to him, such as his parents, aunts and uncles. (Young, et al.)

When this symptom became more florid, everyone looked like an intimate acquaintance. (Ellinwood)
Lightness

...a sensation of my body having lost its weight and gently floating. (Lang, 1939, p.199)

An ethereal lightness seemed to pervade my whole frame...It was a long time after I began to recover and walked out before the earth seemed firm and resisting beneath my feet. (Anon 1856, p.34)

The lightness you feel when you are crazy is a very real feeling. When I was at home I stood on the bed nude; I seemed to be only a half yard from the ceiling. (Row's patient, p.195)

a feeling of walking upon air...for a minute or two I felt so light that I was certain I should have risen off the ground if I had not hold of his arm. I told him this, and said it was more than I could understand; and as I got lighter and lighter, I got quite frightened, and clutched hold of him, saying I had not the slightest idea where I was going to if I "went up". Instantly I felt as heavy as lead, and could hardly lift my feet off the ground. (Davidson, pp.62-63)

It used to seem to me that I was floating in the air, and I often thought to myself, "Why how queer you have been feeling. (Peterson, p.198)
Euphoria

During the first two weeks of my psychosis, religious experience provided that dominant factor of the psychotic phenomena. The most important form of religious experience in that period was religious ecstasy. The attempts of the thoughts-out-loud to persuade myself to adopt a messianic fixation formed the hallucinatory background. In affective aspects, a pervasive feeling of well-being dominated the complex. I felt as though all of my worries were gone and all of my problems solved. (Lang, 1939, p.191)

...an unusual buoyancy of spirits. (Anon 1849)

I was in a higher and higher state of exhilaration and awareness... It gave me a great feeling of power. I had the feeling I loved everybody in the world...(Case #3, p.27-28)

I began to experience goodness and love for the first time. (Bowers Case #2, p.26)

Simon was perfect. The farm was perfect. Virginia was perfect. My mother was perfect. My father was perfect. I was perfect... Everything everyone said was perfect. Everything came together just right. (Vonnegut, p.110)

First and foremost comes a general sense of intense well being. (Custance, p.44 in Kaplan)

A state of exhilaration...a feeling of my own holiness. (Clark, p. 465)

He felt pure joy, intense and unallowed. (Clark, p.465)

Suddenly my whole being was filled with light and loveliness and with an upsurge of deeply moving feeling from within myself... (Coate, p.21)
Inability to Speak or Read

I remember trying to speak and at times finding myself unable to give utterance to my thoughts. (Beers, p.13)

...an alphabet soup of letters...lifting the pages of the book, I let them fan slowly by my eyes. Words, dimly familiar, but twisted all awry, like faces in a fun-house mirror, fled past, leaving no impression on the glassy surface of my brain...

I squinted at the page.
The letters grew barbs and ram's horns. I watched them separate each from the other, and juggle up and down in a silly way. Then they associated themselves in fantastic untranslatable shapes, like arabic or chinese. (Plath, pp.130,131)

Then what happened was that I had gone down into a dumb-struck state...I was quite unable to express any feeling in words. My speech seemed to have gone. (Barnes, p.43)
Sensory Heightening
Positive or Neutral

Colors became more vivid. I saw the sunlit country blaze out with the intensity of a Van Gogh. (Coate)

My sense of touch is heightened...My senses were growing so keen that the most commonplace food and drink seemed like ambrosia. (Martin, p.28)

My whole surrounding appeared to be clearer and sharper. (Winkler's patient in Landis)

Water from the opposite faucets was very hot and very cold. (Kroner, p.1)

It was terrible to be touched. Noise disturbed me, light was blinding. (Barnes, p.44)
APPENDIX D

A More Complete Listing of Symptomatology

1. SENSES

A. Vision

FOCUS - decreased
   increased

BRIGHTNESS - increased
   decreased

DEPTH - increased
   decreased

SIZE CONSTANCY - macropsia
   micropsia

OUTLINE - missing, fuzzy shapes seen
   seen only

SHAPE - variable

COLOR - brighter
   diminished, visual field appears:
   Blue
   White
   Yellow
   Red
   Purple

"film" colors, object appears red or black

FAMILIARITY - gone, jamais-vu
   heightened, déjà vu

LOSS OF FIELD - bands across field
   tunnel vision, peripheral vision lost
   loss of fixated objects
RECONSTRUCTION PROBLEMS - can't assemble object in memory (visual memory) can't assemble or maintain image seen in world

HALLUCINATIONS - moving or stationary, colored, bright or dark
dots
circle
line
net
spirals
general undefined shape, bright or dark
object, handwriting
isolated person
lilliputian figures
procession
partially unconstructed scene
fully constructed scene
cascade of images, like movies

MOVEMENT - appears speeded up
appear slowed down
jerky

AURA - around objects

EXTRUSIONS - from basic form, like horns

B. Audition

INTENSITY - sounds have strong impact (macracusia)
sounds muffled (micracusia)
own voice sounds strange

HALLUCINATIONS - general primitive sounds: buzzing, ringing, cracking, etc.
voices
music
thoughts aloud
MEANING (memory) - not available for auditory sounds heightened

C. Taste

INTENSITY - heightened
        diminished
        altered

HALLUCINATION

D. Touch

INTENSITY - heightened
        diminished
        altered

HALLUCINATION - Signe de maigre

E. Smell

INTENSITY - heightened
        diminished

HALLUCINATION - pleasant or no

F. Equilibrium

2. PROPRIOCEPTION

WEIGHT - body feels light
        body feels exceptionally heavy

PAIN - insensitive to
        hypersensitive to
        sensations of
MOTOR FEEDBACK - missing from extremities
mouth, jaw and throat
inner organs

SENSORY FEEDBACK - tingling
electricity
numbness

3. MOTOR
- single muscle spasm
group muscle spasm
flailing of extremities
extension and rigidity
eye muscles, conjugate gaze
eye muscles, nystagmus
uncoordination
catatonia
dysautomatism

4. ACTIVITY
- whole body fatigue
  excitement
  hyperactivity

5. AUTONOMIC SYSTEM
TEMPERATURE - increased body or extremeties
decreased body or extremeties
sudden oscillations

RESPIRATION - increased
decreased

SALVATION - decreased
  increased

PERSPIRATION - increased
decreased
CIRCULATION - increased tachycardia heart rate
  blood to head
  headaches
  decreased bradycardia

6. DRIVES

SEXUALITY - increased
  decreased
  change in sex performance

FOOD CONSUMPTION - increased
  decreased
  finicky eating
  refusal of meat
  total refusal

THIRST - increased
  decreased

SLEEP - decreased
  increased
  change of day-night schedule

MATERNAL BEHAVIOR - increased
  decreased

7. COGNITIVE PROCESSES

THOUGHT - racing
  slowed

SPEECH - increased ("press of speech")
  decreased
  not meaningful
  increased meaning
  loss of meaning

MEMORY - loss of short term memory
  prosanopia--inability to identify faces, persons
  return of old memories
  loss long term memory
CONSCIOUSNESS - partial loss
    total loss, as if in a faint

MEANING (ASSOCIATIONS?) - everything especially meaningful
    flash of insight

PREMONITION

READING WRITING - increased
    decreased

ATTENTION - easily or not easily distracted
    narrow or broad focus of attention
    dreamy state (petit mal)

8. EMOTIONS
    - anger
      euphoria
      depression
      grief
      fear

9. BEHAVIORS
    - attack
      self-attack
      flight
        fugue
      freeze
      hoarding
      catatonia
      nudity
      singing
      laughing
      grimacing
      stereotyped picking at object, self
      mastication
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