

# The Disorder of Consciousness in Schizophrenia

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## Abstract

The schizophrenic experience is described as an inability to sustain an intentional focus to attention. Attention is captured by incidental details in the schizophrenic patient's environment, and this gives rise to a spurious sense of significance. The patient's inability to direct a train of thought prevents full access to long-term memory so that early components of perception, which are designed to give early warning of threat, are overly influential and unmodulated by further mental processing. These hasty ideas are given delusional conviction when they capture attention and induce a sense of significance similar to the false significance of perception. The schizophrenic patient's lack of control over his mental processes makes him passive in relation to his own thinking. It prevents him from attending to the slight promptings of his subconscious, and when these emotions and intuitions are not amplified by being brought into focus, he loses a sense of himself.

There have long been reports in the literature, both from clinicians (McGhie and Chapman 1961; Chapman 1966) and from patients themselves (MacDonald 1960), that people with schizophrenia have difficulty filtering out irrelevant stimuli and controlling what they pay attention to:

... the mind must have a filter which functions without our conscious thought, sorting stimuli and allowing only those which are relevant to the situation in hand to disturb consciousness. And this filter must be working at maximum efficiency at all times, particularly when we require a high degree of concentration. What had happened to me in Toronto was a breakdown in the filter, and

a hodge-podge of unrelated stimuli were distracting me from things which should have had my undivided attention. [MacDonald 1960, p. 218]

When they cannot effectively ignore what is unimportant, schizophrenics cannot choose what they will think about, and mental processes that would normally be imperceptible and automatic intrude into awareness (Frith 1979). This has led many writers to regard a deficit in selective attention as one of the central psychological lesions in schizophrenia.

As early promise gives way to the growing success of the attentional deficit hypothesis, there remains a gap between the computer terminology in which attentional theories are couched and the patient's experience of schizophrenia. Somehow, the neat lawns of the information-processing experiment still seem a far cry from the luxuriant jungle of paranoid symptomatology. The concept of attention needs to be translated into the language of experience if we are to use it to understand the patient in human terms.

In this article, I use schizophrenic patients' own accounts of their illness to illustrate a disorder of consciousness. The literature of first-person accounts of schizophrenia is vast (Sommer and Osmond 1983) and rich (Landis 1964; Freedman 1974), and although it needs to be approached with caution (North and Cadoret 1981; Gordon 1982), it provides important information that can be used to connect different accounts of the disease. I do not discuss hallucinations, which have

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been reviewed elsewhere (George and Neufeld 1985).

It is difficult to systematize schizophrenic experience, because accounts appear contradictory. Some patients describe an animated world full of significance, while others describe experience that is empty and null. Some of the contradiction may be only apparent, caused by the strain put upon language as it is stretched to refer to experiences beyond its proper domain. The usual mentalist language which we apply to ourselves was designed to describe a particular kind of consciousness—consciousness in the Western European tradition (Walsh 1980). Within this tradition, the impression of a subjective agency, or “I,” is so basic to our thinking about human beings that even the grammar we use presupposes it. But the language that supports this implicit psychology may not be well suited to describe schizophrenic experience (Stich 1983), and some of what appears to be contradictory, and most of what appears to be vague, may arise from this source.

To a large extent, however, patients’ accounts differ because their experiences are different, depending on whether they suffer more from the positive or from the negative symptoms of schizophrenia. By convention (but see Sommers 1985), the positive symptoms are delusions, auditory hallucinations, bizarre behavior, and formal thought disorder. The negative symptoms form the defect state that Kraepelin (1913/1971) thought characteristic of dementia praecox: blunting of affect, decreased production and poverty of content of speech, apathy, lack of persistence at tasks, neglect of personal appearance, and a reduction in sexual interest and in interest in other people (Andreasen 1982; Andreasen and Olsen 1982). While

negative symptoms may be present at the beginning of the illness (Lindenmayer, Kay, and Opler 1984; Pogue-Geile and Harrow 1984), they also appear to be a function of chronicity (Owens and Johnstone 1980; Pfohl and Winokur 1982). These findings suggest that there will be marked differences in the patients’ descriptions of their experience, depending upon their initial symptom picture and the stage of their illness.

In this article, I suggest that the schizophrenic’s deficit in focusing attention leads to difficulty in maintaining a stable topic of thought and in following its theme without being diverted or petering out, and that when the patient cannot direct his attention to vague hunches and intuitions, he becomes disconnected from his emotional origins in the subconscious. The capturing of his attention by incidental details in his surroundings or memory means that he increasingly becomes the audience of his mental life, rather than its initiator, so that he becomes passive and displaced. Finally, the loss of a feeling of identity—of “I” as the effective source of mental life—impoverishes the feeling of kinship with other people as humans.

### Normal Attention

It is customary to divide cognition into two kinds of process (Kahneman 1973; Schneider and Shiffrin 1977; Shiffrin and Schneider 1977; Posner 1982). The first kind is the quick, superficial sorting of stimuli before awareness, or the execution of stereotyped actions. An example is the effortless way in which the eyes sweep over a photograph to focus upon the important feature, the figures in the landscape. This is in contrast to the slow and deliberate way in which a person scans

across an array of letters when he has been instructed to pick out any grouping that spells a word. In the first case, the procedure has been so practiced that it has become automatic and no longer requires conscious attention. This basic organizing of the perceptual input is an example of what Neisser (1967) called preattentive processing. The principle applies also to some actions, such as the key strokes of a skilled typist. These are activities, like walking and chewing gum at the same time, that can proceed in parallel without detriment to the performance of either.

The second kind of cognition, involving selective attention, is voluntary, controlled, effortful, intentional, and more limited in the amount of information that it can handle at any given moment. An example would be rehearsing something one wished to remember, or deciding whether two drawings of a complex three-dimensional shape are mirror-images of each other. There is a tendency to equate selective attention with conscious awareness (Mandler 1975), and to think of the preattentive processes as akin to automatic reflexes.

An example of the interplay of the two processes is the dichotic listening paradigm. This is also known as the “cocktail party phenomenon,” since it resembles the difficulty of paying attention to one conversation without being distracted by other conversations close by. In a typical experiment, the subject, wearing headphones, is asked to listen to one of two messages and to repeat it as it is being spoken to him. The message that the subject is required to shadow may be defined as the one presented to the left ear, or as the message spoken in English or by a female voice (irrespective of whether it switches from ear to ear).

When the message to be attended to is defined by simple physical characteristics such as its location or voice quality, the subject can perform these shadowing tasks very efficiently. In these simple cases, we can imagine attention being directed—like foveal centering, or pointing a directional microphone—on the basis of the characteristics of the message to be attended to. However, properties of the *ignored* message also affect the ability to attend, and this indicates that the person shadows by excluding the to-be-ignored message as well as by selecting the to-be-attended message. To filter out the irrelevant message selectively, the subject must first sample and analyze it so that it can be distinguished from the message to be attended to (Treisman 1964). In other words, although subjects generally show little evidence of acquaintance with the content of the to-be-ignored message, they must “know” something about it to reject it correctly.

Although early, automatic processing is capable of determining whether something is of emotional significance to the person before consciousness (Corteen and Wood 1972), and can even make this determination on the basis of what a word means without the person’s consciously reading it (Marcel and Patterson 1978), it is necessarily a quick and unelaborated perception. This early appraisal of the significance of the stimulus is somewhat more than a report of mere salience or a crude alert, but far less than an appreciation of its full meaning to the person (Anscombe, in press). It is not until the later, effortful, and usually conscious reappraisal takes place, that the percept develops meaning by being integrated with the person’s body of knowledge and by being placed in context.

The first (gut) reaction occurs before awareness: it is a crude scan of the object to appraise its significance according to preset notions, which include expectations, aversions, appetitive states, prejudice, and other factors that color first impressions (Erderlyi 1974; Zajonc 1980). Pre-attentive analysis gives the person a quick sweep of his surroundings without engaging attention until something important has been detected.

There is, however, a tradeoff between the speed of the scanning and the depth to which each item can be processed (Fodor 1983). Typically, preattentive processing is fast and shallow, so that it does not identify the object it singles out beyond the characteristic which makes it important and brings it to notice. Such processing is, both literally and metaphorically, a cursory glance. This is consistent with its function of drawing attention to a particular part of the visual field that preliminary analysis indicates may be important (Posner 1980).

In locating stimuli that may be significant, the preattentive analyzers constitute the organism’s early warning system, particularly for looming and approaching objects (Bernstein 1979). To fulfill this function well, it is better for them to respond in error than to omit calling attention to a valid threat. In fact, we could say that it is part of the preattentive analyzers’ job to be “paranoid.” As Fodor puts it:

Perception is built to detect what is right here, right now—what is available, for example, for eating or being eaten by. If this is indeed its teleology, then it is understandable that perception should be performed by fast, mandatory, encapsulated . . . systems that . . . are prepared to trade false positives for high gain. It is, no doubt,

important to attend to the eternally beautiful and to believe the eternally true. But it is more important not to be eaten. [Fodor 1985, p. 4]

If preliminary sampling indicates that the object is significant, the pre-attentive processes attract attention to it, so that the person can focus on it with the full faculties of consciousness, thinking about it, watching it, trying to remember when it has been seen before, whether it is as dangerous as it seems at first glance, what it tastes like, and so on. Consciousness is a way of accessing further associations and deepening the processing. It fills out the meaning of what is perceived beyond the shallow, nervous appraisal of the preattentive analyzers and gives a second opinion on what has been glanced at.

To be efficient, preattentive analysis must be selective in what it draws attention to. A person cannot notice everything. To a large extent, the kind of stimuli and features that preattentive analysis responds to is preset; for example, it is particularly responsive to change and novelty in the environment, alerting the person and orienting attention to the new stimulus (Bernstein 1979). From moment to moment, the preattentive analyzers need to be set so that they can alert the person to the occurrence of something that he has already established he is interested in (Hoffman, Nelson, and Houck 1983). Although this route can be bypassed, the common way we manage to notice what we are interested in is by deliberately framing it to ourselves, and by setting the preattentive analyzers by conscious rehearsal. In the dichotic listening task, subjects are able to switch at will from attending to a message defined by one characteristic (“the message in English”) to another

message defined differently ("the message spoken by the male voice"): they are able to set, by conscious intent, the kind of preattentive analysis that is carried out, and they are able to maintain it so that they continue to track the message by its relevant characteristic ("male voice" rather than "in English").

### Attention in Schizophrenia

Recently, a pattern of deficits in schizophrenia involving selective attention and the linkage of attention to preattentive processes has begun to emerge. In their review of information processing in schizophrenia, Nuechterlein and Dawson (1984) conclude that schizophrenic patients do poorly in experimental paradigms in which successful performance depends on sustaining focused attention in the face of boredom, fatigue, high information load, or distraction. They found some suggestion that automatic processes may be impaired (e.g., Braff and Saccuzzo 1981), particularly during periods of active psychosis. In general, however, people at risk for schizophrenia, patients who were acutely symptomatic, and those in relative remission were deficient in tasks requiring the active, effortful, attentional manipulation of material, such as maintaining a set (continuous performance task), scanning memory (forced-choice span of apprehension), and active rehearsal (serial recall). Acutely symptomatic schizophrenic patients also appear to do poorly in shadowing messages during dichotic listening. Other reviewers also emphasize that while the automatic processes of schizophrenic people appear almost normal, their conscious, controlled cognitive processes are unusually vulnerable to interference (Callaway and Naghdi 1982; Gjerde 1983).

A similar picture emerges of memory in schizophrenia. On the one hand, the performance of schizophrenic patients on tasks that rely on automatic processes do not show significant differences from normal controls. Recognition memory, which is thought not to require an active search process, is adequate (Koh and Peterson 1978), and the encoding of conceptual categories of items to be remembered is not impaired (Traupmann, Berzofsky, and Kesselman 1976). Other component processes of memory, although not necessarily automatic, also appear normal, such as the rate of scanning items in short-term memory (reviewed in Broga and Neufeld 1981). In long-term memory, the semantic and syntactic ordering of representations also appears to be normal (Larsen and Fromholt 1976; Koh, Marusz, and Rosen 1980; Broga and Neufeld 1981; Lutz and Marsh 1981). Recall, however, is impaired. In contrast to the previous processes, recall requires the person's directed attention: the person must organize the items and actively rehearse the list to store them in long-term memory and must then direct an accurate search through associations to retrieve them. Importantly, the schizophrenic patient's deficit in recalling information can be overcome when active rehearsal induced as part of the experimental conditions substitutes for the patient's spontaneous efforts to structure the information (Larsen and Fromholt 1976; Koh and Peterson 1978; Broga and Neufeld 1981).

Neuropsychological studies of schizophrenia mirror the findings from information-processing experiments. As in the psychological studies, there is some suggestion that schizophrenics may have a deficit in the early processing of information at the level of stimulus registration and channel selection, although the

results of evoked potential studies are mixed on this question. This is overshadowed, however, by the general consensus that later components, such as  $P_{300}$ , are abnormal (Shagass et al. 1978; Spohn and Patterson 1979; Baribeau-Braun, Picton, and Gosselin 1983; Brecher and Begleiter 1983). While the exact psychological correlate of  $P_{300}$  remains elusive, its amplitude appears to be related to the degree to which an important and relatively uncommon stimulus engages the subject's attentional resources (Wickens et al. 1983) and makes it necessary for the subject to update his model of the context in which the stimulus occurs (Donchin, Ritter, and McCallum 1978; Pritchard 1981). The attenuation of  $P_{300}$  in schizophrenia suggests that these patients may register the occurrence of a stimulus, but have difficulty in subjecting it to further processing that would assimilate the new information with their background knowledge.

A study by Steinhauer and Zubin (1982) helps link together the two approaches of information processing and evoked potentials. They found that schizophrenic patients showed early evoked potentials to target tones that they had been asked to count, indicating that the stimuli had been initially processed. The subjects showed diminished  $P_{300}$  responses, however, and they did not show the pupil dilation that usually accompanies it and that has been shown to be a good measure of intentionally directed "mental effort" (Beatty 1982).

When a person detects a stimulus that might be of significance to them, a characteristic orienting response occurs. The response is composed of an increase in skin conductance, peripheral vasoconstriction, bradycardia, blocking

of electroencephalographic (EEG) alpha rhythm, and a turning of the head or eyes toward the stimulus (Lynn 1966). In view of the lack of correlation between the different measures of the orienting response, it seems likely that it is composed of a number of related but distinct perceptual processes, including both preattentive processes and the engagement of attention itself. Clearly, however, this is an area that bears particularly on the question of how the two kinds of cognition are linked in schizophrenia.

Measures of the orienting response, such as skin conductance and finger pulse volume (Spohn and Patterson 1979; Bernstein et al. 1982; Dawson and Nuechterlein 1984), indicate that about half of the schizophrenic subjects do not show an autonomic response to tones or flashes of light that they have no reason to pay attention to (the corresponding proportion among normals is about 10 percent). When the stimuli are made relevant by asking the subjects to press a pedal when they occur, schizophrenic patients initially show autonomic responses that are similar to those of normal subjects, but these habituate quickly so that the patients again become unresponsive (Bernstein et al. 1985). However, one EEG indicator of the orienting response—alpha blocking—does not show the same lack of responsiveness and does not habituate prematurely (Fedio et al. 1961; Hein, Green, and Wilson 1962; Bernstein et al. 1981, 1985).

Normal alpha blocking contrasts with the abnormal attenuation of P<sub>300</sub> in schizophrenia. If we take alpha blocking to be an indication that the system is preparing to receive information (Ray and Cole 1985), performing tasks such as moving the eyes to center on the target, accommodating, and so on, and if we

take the autonomic changes as an indication that the organism has responded to the call for attentional processing capacity (Bernstein et al. 1981; Beatty 1982), then the absence of impairment in alpha blocking in the presence of abnormal autonomic orienting is consistent with the other results suggesting that the schizophrenic patient's preattentive processes are largely intact while his capacity to direct and sustain attention is defective.

### Consciousness

The elemental precision of cognitive psychology is obtained at some cost, mainly a reduction in scope. Like the early explorers of Africa, we know a great deal about the coastline of the mind—the periphery of perception and response—but little of the ramifications within. In contrast to attention, which is a predominantly perceptual notion based on the metaphor of foveation, the concept of consciousness emphasizes the contents of awareness and the mentation in between stimulus and response. Intentionality and choice are intrinsic to the concept (Sartre 1956), and it meshes more naturally with the language of subjective experience such as wishes, willing, intuitions, and the sense of self.

**Thematic Tracking.** When the clinician takes a history, what he does aloud with the patient resembles what he does later with his own thoughts as he mulls the case over. He controls the interview in various ways, pacing the flow of information, asking the patient to elaborate on some aspect in greater detail, or skipping from one episode to another. All the time, the interviewer tracks the implicit theme that gives

meaning to the events which are being recounted to him.

When he thinks about the interview to himself, the clinician is able to switch from a narrow focus ("Did his brother leave to join the army before or after his first hospitalization?") as he connects together pieces of information to form a conclusion, to broader musings as he tries to open himself to possibilities ("What must it have been like to have your brother leave you unexpectedly?"). In doing so, he monitors the boundaries of his thought so that his mind does not wander off the topic. He sticks to the point by moving his attention at will from one topic to another, actively searching for a pattern. I do not wish to imply that the shifting of attention is always a conscious decision, but that it is usually accessible to deliberation and that it is flexible and responsive to momentary changes in what the person is interested in. In this way, the clinician finds meaning in the material and, most importantly, meaning that he has created for himself.

**Access.** The clinician's ability to frame what he is thinking about, and his ability to shift the focus of his thought in a thematic way, allows him self-access characterized by a precision that his schizophrenic patient cannot attain. The ideas we want to think are rarely the ones that we are immediately conscious of. Emotions, too, are not always so intense that they become obvious and pressing.

Subconscious promptings arise as vague stirrings, and they develop, given the proper attention, into intuitions, impulses, convictions, and hunches. They need to be amplified and elaborated, and fixed in the form of a verbal or pictorial image in

consciousness if they are to be sustained. Sometimes these ideas are memories, and we need to follow the right associations if we are to find the recollection we are looking for. Each of these cases demands that attention be placed accurately. The precision involved in mental maneuvers is easily overlooked. Even those processes that appear to be passive require an initial aim and impetus. Beginning a fantasy, for example, requires accuracy in launching ourselves on the right associative "glide-path," although this is usually so effortless that it may go unnoticed.

Gaining access to oneself may not be a simple procedure. For example, when the clinician has a hunch that a psychotic patient might have been depressed, he might try to remember certain moments during the interview to see if there were objective signs—eyes downcast, a lack of cadence, delusions whose grandiosity disguised their gloominess—to support this guess. It is not a random search, for his attention is guided to recall certain moments. He turns the interview over in his mind in the hope that he can reempathize with the patient, and use this intuition as a detector to locate instants in the interview from which he can then proceed to more objective clinical features.

Gaining access to the subconscious is a little like fishing: it requires careful positioning of the right lure. If we are lucky, inspiration comes serendipitously; but more often we must actively try to elicit ideas or feelings that we sense just beneath the surface by directing the right kind of thought into the right area in the hope of cuing the association we seek. Hunches need to be attended to so that they can be amplified and gather associations, so that they achieve a critical seman-

tic mass to allow them to be put into words. This focusing transforms an intuitive prompting into a thought, and gives it greater definition and persistence so that the person can more clearly represent himself to himself. Like casting a line, intuiting is a directed, effortful, willed process, which may be accomplished accurately or inaccurately, with more or less skill and dexterity. Such thinking is accompanied by a particular cognitive sensation of attentional effort (Kahneman 1973), indicating to the person that the thought which emerges is something he has produced himself, from his own mind.

In addition, the person's experience of emotion and action as originating in his mind, and as something over which he has some control, forms the basis of an analogical understanding of other people. To some extent, his own emotional life is a starting point from which he extends himself empathically to others, so that he understands other people as he experiences himself. If the patient is not able to experience himself as having depth, he may also find it difficult to credit others with an emotional life.

**Intent and Owned Action.** For intentional behavior to take place, a stable thought must be maintained from its coming into focus as impulse, through deliberation, and into action. This ensures that the action is guided toward its goal. Action that is willed in this fashion links the person's inner and outer worlds so that his subjectivity impinges on the real world. Action that is not intentional is reflex or automatic and lacks this origin, which gives it meaning.

Intentional actions are brought into being by means of active mental operations, and they confer upon

the thinker a sense of personal agency, in the sense that if I do something that I have decided to do, it is *my* action. Volitional mental activity also provides a subjective sense of location for awareness: subjective experience is centered at this point as a sense of "I." Because intentional action originates in this way, it carries the person's stamp upon it: it is owned action.

In view of Freud's contribution to our understanding of unconscious conflict, we should not overemphasize the consistency of the impulses present at the edge of consciousness, or exaggerate the unitary nature of the person. However, the point I wish to make is that without this capacity to shape and to direct thought, the person cannot give coherence to his behavior, and remains at the mercy of his surroundings or impulse. In some basic way, the link between inner states, via thought and intention, to effects out there in the world proves the person's efficacy in a crucial way: thought and will work, because they produce actions.

In summary, I am suggesting that the clinician's experience of himself as an agent in the world on his own behalf, and as a continuous "I," comes from the way in which his actions originate: he does things intentionally for his own reasons. This capacity in turn depends on his ability to carry out certain subjective mental operations—specifically, he is able to think things through to their conclusion, to frame a topic, and to track along a theme. His reasons are not always "reasonable," but they are *his*, because he makes them himself, refining them from intuitions that arise within him.

He stays connected to himself because he can introspect sufficiently well to prompt his subconscious and to bring vague impulses and ink-

lings to a focus leading to deliberation, whimsy, or action. Above all, his thinking is an active process, and he experiences his mental apparatus as something efficacious—he has a self and it works. Finally, he extends this assumption to others, supposing them, too, to be agents of a mental life that is complex and sometimes factious.

### The Experience of Schizophrenia

**The Capture of Attention.** People with schizophrenia find themselves staring at things and describe their attention as being captured by incidental aspects of their surroundings. In 1913 Kraepelin (1971) noted an “irresistible attraction of the attention to casual external impressions” (pp. 6–7). Minor details of color or texture, or blemishes, attract the patient’s notice with a salience that is out of proportion to their true significance. At the same time, the thing that the person is led to fixate his attention upon may have no genuine meaning to him:

I seem to be noticing colours more than before, although I am not artistically minded. The colours of things seem much . . . clearer and yet at the same time there is something missing. The things I look at seem to be flatter as if [I] were looking just at a surface. [McGhie and Chapman 1961, p. 105]

The patient’s attention may jam so that he remains stuck for minutes on end at a single thought or perception. On a psychiatric ward, for example, it is not uncommon to see a patient open the refrigerator door and stand as if frozen in thought, his attention captured by the illuminated contents inside. Patients talk about thought blocking as being hypnotized or entranced:

If I am reading I may suddenly get bogged down at a word. It may be any word, even a simple word that I know well. When this happens I can’t get past it. It’s as if I am being hypnotized by it. It’s as if I am seeing the word for the first time and in a different way from anyone else. It’s not so much that I absorb it, it’s more like it absorbing me. [McGhie and Chapman 1961, p. 109]

Getting bogged down at a word would appear to be the subjective sensation of the patient’s inability to select the attentional focus for himself and to move it along to the next word to be read. In the last example, the word captured attention, but this did not result in any deepening in meaning or associative movement. It appeared to be without any further effect other than a sense of strangeness and fascination.

Normal subjects can also experience this “stickiness” of attention. When they are required to reverse a task that they would normally perform consciously but that enormous amounts of practice have enabled them to perform automatically, they find that they are often unsuccessful in resisting the allocation of their attention to targets that have ceased to be relevant. In experiments by Shiffrin and Schneider (1977), “. . . the subjects were uniformly startled and even dismayed by the extreme difficulty of the reversed task” (p. 135) when they were asked, after a long time detecting letters among numbers on a visual display, to look for numbers among letters. The subjects had become so practiced at the first task that they could detect letters preattentively, and this automatic process misdirected their attention when the task was reversed and often overrode their intention to look for numbers.

The schizophrenic patient resembles these subjects in that his attentional focus becomes subservient to preattentive processes that have become detached from higher centers. It is as if he suffers from an ataxia of attention, so that it drifts here and there and is eventually snagged by something his gaze happens to focus upon. Attention is captured by incidental details because an intentionally imposed focus is absent or overridden, and so early routines of perception, such as locating the target and centering the visual apparatus upon it, proceed independently of what he intends. The patient is not able to assert his own purpose and to overcome the power of such low-level processes to attract attention to what they have detected, and so he finds himself staring at something of no particular importance.

Some of the ways in which patients try to escape from the capture of their attention resemble those adopted by patients with a spasm of fixation due to a supranuclear palsy of eye movements:

. . . when these patients tried to look towards an object they employed various devices by which to interrupt the fixation of the point on which their eyes were directed: some blinked or closed their eyes momentarily, or jerked their heads abruptly; one man occasionally brought his hands before his eyes. . . . Normally, fixation is under the control of volition, for we can move our eyes from object to object as we will, but when voluntary movement is defective the fixation reflex becomes so dominant that the eyes may remain anchored to an object and can move from it only when the reflex is broken by interruption of the retinal impulses. [Holmes 1938, p. 110]

Since the remobilization of attention in schizophrenia involves more than breaking off a visual focus,

however, the maneuvers may be less successful. When attention has become stuck upon some object, even attempts to escape the entrancement can lead, like a psychological maze, back to the beginning, as if even this exertion of intent has been subverted:

As soon as my gaze fell on a spot of any sort, a shadow or a ray of light, I could not drag it away, caught and held fast by the boundless world of the infinitely small. To wrench myself out of this impasse I began to beat on the table or on the wall with both fists. But the efficacy of this activity soon exhausted itself. Instead of saving me from the absorbed perception of the spot, in turn I became lost in the automaticity of this substitute behavior. [Sechehaye 1970, p. 56]

In this passage, Renée, Sechehaye's patient, describes the entrainment of attention by her own activity, developing into repetitive movement similar to that seen in the rhythmic mannerisms of chronic patients. With this, the capture of attention is complete, and as McGhie and Chapman (1961) point out, the patient's attention is less subject to his volition and more determined for him by the stimuli that impinge upon him.

**Heightened Significance.** In schizophrenia, objects seem to jump out and capture attention, but this attraction has nothing to do with what the person is looking for or what he might be interested in. We are accustomed to our attention being drawn to things that are either obvious because their physical character makes them stand out—they are loud or noxious—or because they are surprising or novel, or because they match some internal state—a hungry man noticing a hotdog

stand, for example.

Much of what preattentive analysis brings to attention is by virtue of the objective, physical properties of the stimulus: a loud noise, a bright, saturated color against a drab background, or sudden movement at the periphery of the visual field. Aspects of the environment are also *made* obvious. Preattentive perceptual mechanisms are tipped off from above: they may be primed to bring attention quickly to certain features that the person has deemed important (Posner and Snyder 1975), or they may be enhanced by the activation of the representation in memory of what the person is expecting (McLean and Shulman 1978).

To find someone in a crowd, for example, we might (preattentively) scan everyone there to pick out the people with green scarves, and then look more closely at (consciously attend to) those people's faces to see if one of them is the particular person we are looking for. The focus on green in a particular location (between heads and shoulders) is set deliberately and gives the detection of green a special status in attracting attention to it once it has been located. It is as if the preattentive processes are instructed by consciousness to bring certain things to its attention: the search is prepared deliberately to proceed automatically with a green "set."

When preattentive analysis detects the feature that it was primed to react to, it attracts attention and the resources of consciousness to that location in the perceptual field (Posner 1980). This arranged conjunction of object and conscious perception is accompanied by a certain kind of subjective experience—one of recognition, arousal, startle, or interest. Sets may be relevant only to a particular occasion, or they may be more enduring matters of policy.

Some features of the world, such as the red of a brake light, your own name, someone's eyes directed at you, pubic hair, and so on, achieve a perceptual salience because of their importance to the person.

To say that such features are more obvious is simply a way of restating the fact that the person notices them more quickly and easily. Since noticing is a function of the orienting of attention to a feature that has been detected by perceptual processes preceding awareness, and since features are noticed more readily if these processes have been activated in advance, the quality of being obvious may be as much a consequence of the intentions of the perceiver as the physical characteristics of the object itself. However, it may not always be recognized that being interesting, or important, or obvious, or significant is an "endogenous" quality, instead of something "out there." At times, it may appear to be a property of the object rather than a contribution of the perceiver.

Normal subjects can be startled by the quasi-physical "halo" about objects when their preattentive analyzers have been set by methods which they are not accustomed to and which bypass intentional priming. These subjects appear to experience something similar to the heightened significance that schizophrenic patients complain of, so that the subjective impression of emphasis appears almost as a physical property of the object itself. For instance, Neisser (1967) described a tendency among subjects for familiar targets to "pop" out of the experimental display. Kahneman (1973, p. 93) suggested that when subjects detect an item of the kind for which they have a set, attention is charged with a particular intensity, so that the stimulus "jumps"



from the background.

The words used by Neisser and Kahneman to describe the reactions of normal subjects are strikingly similar to the way in which schizophrenic patients themselves describe perception, for example, of colors: "Colours seem to be brighter now, almost as if they are luminous" (McGhie and Chapman 1961, p. 105). This is mirrored even in the terms in which theory is couched—Callaway and Naghdi (1982), for example, refer to the activation of pre-attentive analyzers in their model of schizophrenic attentional disorder as "glow."

The jump, pop, and glow of objects is the experiential equivalent of attention being vigorously switched to focus on these items in the surroundings. As Kahneman (1973) suggests, the analyzers can be set from above down, by instructions to draw attention to features of the environment that the person has defined as important, by the effort of concentration, or by other conscious strategies (Posner and Snyder 1975). In this way, when aspects of the environment are recognized as significant, they do not generally "pop out" in any remarkable way, because recognition is the accustomed result of an intentional sequence of looking for, or noticing, and it matches an expectation. In addition, the significance conferred by the drawing of attention to an object has its origin in the person, and it is not experienced as something emanating from the environment. When, in schizophrenia, this intentional component of noticing something is missing, it is possible for the person to be confused about whether the "significance" to which their attention is drawn is a quality of the object or a subjective aspect of perception.

We are so accustomed to the con-

junction of noticing something, and for the thing that we notice to be either physically intense or important to us, that it is natural to infer that if attention is drawn to something, then the object is either obvious or interesting. But if, in schizophrenia, the person finds his attention caught by an object which does not possess the usual physical characteristics that attract attention (e.g., loud, bright, sexy, noxious, and delicious-smelling), they must conclude, if they are to make sense of their experience, either that their perception has undergone some drastic disturbance, or that the thing they are staring at really does possess a significance whose nature is not immediately obvious. That schizophrenic patients almost always choose the second—delusional—kind of explanation rather than one of the first kind is a fact that needs to be accounted for, and I address this issue in the next section.

The schizophrenic patient cannot shift his attention flexibly, and his interest is captured, not because something there is important, but because attention does not shift back to what he was busy with or on to something else. The process runs backwards, so that things appear significant because they capture attention, and then the salience must be interpreted to mean something. The enhanced significance of what the patient fixates may be so striking to her that the importance of what she is looking at overrides the fact that it lacks any particular meaning:

Every single thing "means" something. This kind of symbolic thinking is exhausting. . . . I have a sense that everything is more vivid and important; the incoming stimuli are almost more than I can bear. There is a connection to everything that happens—no co-

incidences. [Brundage 1983, p. 584]

The conjunction of salience without the person's understanding why the things she is paying attention to should be important to her is nicely captured by Norma MacDonald:

. . . I became interested in a wide assortment of people, events, places, and ideas which normally would make no impression on me. Not knowing that I was ill, I made no attempt to understand what was happening, but felt that there was some overwhelming significance in all this, produced either by God or Satan, and I felt that I was duty-bound to ponder on each of these new interests, 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. [MacDonald 1960, p. 218]

The significance is spurious, but patients feel impelled to react by making sense of it in some way. If they are playful or creative, they may find the experience exhilarating. David Zelt (1981) describes the fascination of colors, each one filled with its own special meaning:

Ordinarily unimportant information from external reality took on new dimensions for him. For example, colors powerfully influenced him. At any given moment wherever David went, colors were used to express judgments about his spirituality. People used the colors of their clothes or cars to express positive or negative views of him. Green meant that David was like Christ; white stood for his spiritual purity; orange indicated he was attuned to the cosmos. . . . [Zelt 1981, p. 530]

Here the world presents David with an excess of significance. But note that the colors express the ideas of *other* people, and that David

is the passive recipient of these impressions: "colors powerfully influenced him." Whether the details are full of significance, or alarmingly empty of meaning, they capture the attention of the person in a way that appears to take the initiative from him. It is as if the world preempts him with its own significance, or imposes its meaninglessness upon those patients with negative symptoms.

The strain of keeping up with the continuous importance of everything becomes exhausting, and as the significance of things begins to overwhelm the patient's capacity to make meaning, he falls behind in giving sense to what he perceives. Delusions become careless and haphazard. The locus of control has shifted, the person becomes more passive, and what is happening appears more and more to originate "out there."

**Delusional Meaning.** The capturing of attention, the apparent role of external circumstances in assigning meaning, and the "glow" of significance emitted by objects add up to a radical change in experience. It almost makes plausible the patient's clutches at explanatory straws—telepathy, thought control, radio receivers, and electronic brain implants.

Several authors (e.g., Maher 1974; Bowers 1974) have noted the heightened significance with which apparently trivial details are invested in the perception of schizophrenic patients, and have suggested that delusions are attempts to explain this aberration:

... for many paranoid patients the delusion should be seen as the reaction of a normal, "sane" individual to abnormal but genuine perceptual experience. [Maher 1974, p. 112]

The difficulty with this kind of explanation is that schizophrenic patients come up with explanations of their perceptual aberrations, particularly heightened significance, that are not sane. The sane explanation is that they have schizophrenia, or something like it. There is an added obscurity to the explanation: since most of us have only dreaming and a small repertoire of intoxications to refer to, we are quite limited in our experience of other forms of consciousness, and we simply do not know how we would respond to that degree of distortion. The concepts of everyday "folk psychology" do not extend that far (Churchland 1981; Stich 1983), and the truth of the matter is that we do not know what sane people do when they go mad.

Fischman (1983) has pointed out the similarities between the phenomenology of schizophrenia and LSD states, noting in particular that they share a heightened awareness and sense of significance. We find similar features in marijuana use, with a dwelling of attention upon details which the eyes happen to light upon and the consequent sense of significance or feeling of enhanced appreciation. But whereas schizophrenic patients are deluded in addition to their exaggerated sense of significance, people who take LSD are generally not: they note the perceptual illusion without getting delusional about it (Young 1974). This indicates that heightened significance alone is not sufficient to induce delusion, and that we require more extreme pathology to justify the transition from illusion to delusion.

The perception of significance, without the person's having a clear understanding of the meaning of the object which holds this apparent fascination for him, constitutes a new

kind of experience. The patient has an affective response to something he notices, but his emotional reaction lacks the resonance of normal conviction. Much of the time, the conviction that something has personal significance comes about by backing up one's first impression with previous experience and background knowledge. Zajonc (1980) has proposed that many emotional reactions and preferences to what the person perceives—reactions which he may not be aware of—precede the more elaborated, verbal, conscious, "rational" processing of information. If he is right, then an inability to shift attention to gain access to one's accumulated working knowledge in memory, and an inability to use this in putting together a more integrated and filled-out percept, would result in one's being stuck at this early stage of perception.

The evidence suggests that while the structure of representations in the schizophrenic patient's memory is intact, he has difficulty remembering things because of a defect in the controlled, attentional processes that make for efficient recall (Larsen and Fromholt 1976; Koh and Peterson 1978; Koh, Marusz, and Rosen 1980; Broga and Neufeld 1981; Lutz and Marsh 1981). Without easy recourse to long-term memory, and without being able to shift attention further along to the next cognitive stages, the schizophrenic patient is at the receiving end of a volley of first impressions—and therefore at the mercy of a perception heavily influenced by old prejudices, attitudes, and momentary fears and expectations.

In particular, such truncated perception leaves the preattentive analyzers, with their heavy emphasis on the detection of threat, without the checks and balances of long-

term memory. The effect may be to bombard the patient with alarming but very sketchy outputs without his being able to direct his attention accurately to the knowledge he has that would reassure him that he is encountering something quite mundane. This would give an affective intensity to ordinary objects and situations, and heighten the significance of events, without the opportunity for more considered appraisal:

My confusion was complete. I was terrified and the wait for something bad to happen was excruciating. . . . I was not "thinking"; I was just reacting, using no judgment. My emotions, inwardly, were at a fever's pitch and it seemed to me that I was only feeling, not thinking. [Brun-  
dage 1983, p. 584]

Of course, the first impressions are the impressions of the person, but to some degree they lack the personal touch. They are not the responses of the whole person, since it is a shallow response that does not include the contribution of other parts of the subject's mind. In a sense, they are resolutions passed without a full psychological quorum (Anscombe, in press). Also, in the same way that a knee jerk elicited by a tap on the patellar tendon does not feel like a normal leg movement, or in the same way that vocalization induced by stimulation of the motor cortex does not feel like a voluntary action (Penfield 1938), delusional responses to a sense of preattentive significance are different from normal convictions because they do not come about in the usual way (Feinberg 1978). They are ideas that have not passed through the customary mental channels, and they do not feel the same.

This may go some way to explaining why the schizophrenic patient

chooses a delusion in his attempt to make sense of the unusual significance that everyday objects assume, instead of attributing it to perceptual disorder. The patient, for example, finds himself gazing at a small pool of coffee someone has spilled on the table: there is nothing remarkable about the blot, and yet it engages his attention. It fascinates him. He strives to find the reason for this, examining its outlines, looking at the pattern of vibrations across its surface as someone walks by, and so on, but his efforts are confounded. Firstly, the coffee spill is imbued with a significance that is spurious—it appears significant because he is looking at it, and not the other way around—but he has no way of knowing this, given the way in which his perception has usually worked in the past.

Secondly, his capacity to gain access to his store of knowledge in an orderly way is impaired. It is difficult for him to get beyond the quick fixes of first impressions, the configurations given to perception by ambient emotion and immediate personal bias. In the absence of a thought-out appraisal, what comes to mind are the things that usually come to mind when a person suspends his critical faculties in artistic creation or free association, or is otherwise careless about what he is thinking: the whimsy, the phantasmagoria, and the elemental fears and appetites of fantasy. The patient, unable to direct his attention in an accurate search of memory, lacks the ability to monitor and check up on these productions, and in the absence of more plausible, common-sense candidates from long-term memory, these may seem like more compelling solutions to the problem of significance than they would otherwise be.

But these factors are still not

enough to explain why the patient should believe that God is communicating to him in the shape of the coffee spill. Why are delusional explanations held so tenaciously? And why, if they are the result of a mistake, a failure of memory, can they not be easily corrected when the patient is reminded of the real state of affairs?

The additional factor is the compelling nature of delusional inspiration. The hunches that occur to schizophrenic patients are convincing to an abnormal degree, and the delusional conviction often seems to arise in an unaccustomed way—suddenly and fully formed—and not in a way in which normal thoughts come into being. Kurt Schneider (1959) referred to this as "delusional perception." A.T. Boisen, who worked as a chaplain at a mental hospital after several psychotic breakdowns of his own, describes the intensity of delusional belief:

After a period of preoccupation and sleeplessness, ideas begin to come as though from an outside source. This dynamism is a normal one. It is known as the "inspiration," or the "automatism," and may be defined as the idea or thought process which after a period of incubation darts suddenly into consciousness. In the case of the schizophrenic . . . such ideas come surging in with peculiar vividness. They seem to him entirely different from anything he had ever thought or dreamed before. He assumes therefore that they come from a superhuman force. He thinks God is talking to him, or perhaps the devil is on his trail. In any case he feels himself in the realm of the mysterious and the uncanny. All the accepted bases of judgment and reasoning are gone. [Quoted in Landis 1964, pp. 52-53]

Many authors, in describing their psychotic experiences, have strug-

gled to convey how delusional ideas come to mind in a way that seems radically different from their usual thinking:

At the onset of panic, I was suddenly confronted with an overwhelming conviction that I had discovered the secrets of the universe, which were being rapidly made plain with incredible lucidity. The truths discovered seemed to be known immediately and directly, with absolute certainty. I had no sense of doubt or the awareness of the possibility of doubt. In spite of former atheism and strong antireligious sentiments, I was suddenly convinced that it was possible to prove rationally the existence of God. [Anonymous 1955, p. 679]

What makes this sudden, delusional inspiration so convincing? One way of accounting for the phenomenon is to assume that a process occurs during introspection that resembles the disordered way in which the schizophrenic person perceives the external world. The inability to attend in a discriminating manner may allow attention to focus and to dwell upon ideas in the same way in which patients find their attention captured by objects. In a similar way to which certain objects become abnormally significant when fixated by attention, certain of the person's own thoughts may be imbued with a significance that is out of proportion to their real importance, simply because they happen to capture the attentional focus.

This undue significance of a thought may be seen when persons under the influence of marijuana, LSD, or nitrous oxide try to communicate their intense sense of insight: to a sober person, their revelations often seem incomprehensible or vacuous. Oliver Wendell Holmes, one of the first proponents of ether, gives an example of such an over-

valued idea induced by inhaling the drug:

The veil of eternity was lifted. The one great truth which underlies all human experience, and is the key to all the mysteries that philosophy has sought in vain to solve, flashed upon me in a sudden revelation. Henceforth all was clear: a few words had lifted my intelligence to the level of the knowledge of the cherubim . . . staggering to my desk, I wrote, in ill-shaped, straggling characters, the all-embracing truth still glimmering in my consciousness. The words were these (children may smile; the wise will ponder): "*A strong smell of turpentine prevails throughout.*" [Holmes 1872, pp. 46–47]

Given the cognitive limitations and liabilities of the schizophrenic patient, there may be a scarcity of ideas that are suitable candidates for awareness. The likelihood of an inappropriate idea capturing attention and gaining prominence in this way is increased if the person cannot gain access to the usual associations in long-term memory that would put what they perceive into a common-sense context. In addition, the proportion of unsuitable candidates for consideration may be increased by the crude appraisals of the stimulus contributed by preattentive analyzers whose function is to provide early warning of threat—whose job it is to be "paranoid." These are the thoughts that may be further enhanced with a "glow" of significance if they then capture the focus of attention.

To summarize, a degree of intentional focus to perception—perception sensitized by what the person is interested in—means that the person imposes significance by concentrating on what he wants to notice. At a later stage of cognition, a normal attentional capacity en-

ables the person to give meaning to what he perceives by guiding access to the appropriate associations in memory and by maintaining the theme so that he can think about what he has seen. When the capacity to direct attention is impaired, dysfunction in the first component may make incidental features unusually noticeable without there being any good reason for such significance. When this happens, the person may confuse physical salience of the object with perceptual emphasis of a set, so that significance seems to be a property of the object itself, rather than a gratuitous effect produced by the person's perceptual processes. In addition, if the person is not able to gain access to cognitive resources to place what is seen in a more elaborated personal context, the percept is colored by early, impressionistic components of the perceptual process—by prejudice, bias, and ambient emotion. Delusional conviction may come about by an idea's assuming undue significance because the patient's attention has become stuck upon it. If negative symptoms predominate as the illness progresses, and the intensity of first impressions fades in a general waning of emotion, the object the person is looking at may be empty of meaning altogether, and the schizophrenic person may look out upon a world that is both significant and meaningless.

**Passive Thought.** For Bleuler (1911/1950), the loosening of associations between the patient's ideas was the primary symptom of schizophrenia from which the secondary symptoms such as delusions and hallucinations followed. It is a symptom that is found early in schizophrenia and tends to persist throughout the course of the illness (Pfohl and Winokur 1982), and it ap-

pears to be largely independent of positive and negative symptomatology (Bilder et al. 1985; Gibbons et al. 1985).

The loosening of associations in the patient's speech shows the difficulty he has in tracking a theme. When asked about it, patients describe an unwieldy profusion of thoughts: wrong words come out by themselves, associations are too disparate to be assimilated, and thoughts become jumbled at the moment of articulation. Thinking becomes caught in a circle, or is enmeshed in subsidiary considerations that are beside the point, or stops. Personal, idiosyncratic topics intermingle with the patient's discourse and cause it to veer away from the original topic (Harrow et al. 1983). Often the person starts a sentence or a thought, but thinking curves off in a direction determined by something else instead of according to his own purpose. He may not notice that he has lost his goal, except to feel a vague futility at the end.

There is, as Shakow (1962) terms it, a loss of set. Holzman (1978) suggests that this difficulty in "cognitive centering" comes from a failure to inhibit irrelevant responses and results in an inability to sustain cognitive control. In a similar vein, Hemsley (1975) discusses a disruption in the schizophrenic patient's central "command signal" which selects the focus of attention.

Instead of tracking thematically, or being guided along a chain of associations, the patient's thought proceeds independently. Mental activity becomes haphazard as thoughts take on a life of their own, replacing the person's intention. Ideas are not so much thought by the patient as they instead appear to move along a trajectory. Jesse Watkins described to R.D. Laing the

feeling of words not only catching his attention, but of going a step further and driving his thoughts:

...they gave me newspapers and things to read, but I couldn't read them because everything that I read had a large number of associations with it. . . . It seemed to start off everything I read . . . and everything that sort of caught my attention seemed to start off, bang-bang-bang, like that with an enormous number of associations moving off into things so that it became so difficult for me to deal with that I couldn't read. [Laing 1967, p. 124]

Like the capture of attention by details in his environment, the patient loses control of the attention by which he directs his thoughts. He loses track of what he was thinking about, and so his thinking is inconclusive. There is a shift in the locus of control as sensations or qualities intrinsic to the ideas themselves determine mental activity. As thoughts move autonomously of the person thinking them, he becomes increasingly passive in relation to the activity of his own mind. When he cannot choose what he wants to think about, and when his thoughts are determined more by his surroundings than by his "self," thoughts are things that happen to him.

**Lack of Meaning.** People with schizophrenia describe both an emptying of perception, and perception as overflowing with significance. In both cases there is a loss of the person's *own* meaning. In a manner similar to the way in which particular aspects of sensation such as colors seem to "glow" or appear "flat," sensation as a whole may take on an enhanced or an empty mode. The differences parallel the distinction between positive and

negative symptoms. In the case of patients with positive symptoms, the instability of attention permits inappropriate associations to take the place of a deliberate stream of consciousness, and attention is called to objects that have no real significance. In the case of patients with negative symptoms, nothing much fills the vacuum left by deliberate thought, and no alternative attracts attention in the absence of an intended focus. In the negative mode, perception renders the world dull, and there is a flattening of perspective and "something missing" that the patient may be at a loss to convey further.

O'Brien (1958) described the difficulty in giving meaning to a state she perceived as being like a dry beach with waves of fresh thought all too seldomly washing upon it:

I passed a newsstand and saw a newspaper headline which announced that a star had fallen from a window. The dry beach contemplated the headline with mild surprise. How could a big thing like a star get into a window? A wave cascaded gently on the shore and I realized suddenly that the star was probably a Hollywood star. *Death of a Salesman*, said a movie marquee. The dry beach blinked at the marquee and speculated vaguely that a salesman might be a native of some country named Sales, probably in Asia. Then a wave broke and I remembered that I had read the play and I was aware sharply of the name of the country in which the salesman was a native. [O'Brien 1958, p. 100]

This is the subjective experience of concrete thinking. The person does not enter his subconscious for intuitions that would fill out the percept and link it to himself. It does not easily relate to his past by the associations it evokes in memory, or to his future by its relevance to his

intentions. A shift has occurred: less and less, the subject forms his own impressions, and more and more he is impinged upon by his environment. In part this shift occurs because there are fewer intuitions about the situation that prompt his attention, and in part because he seems unable to shift his attention to tap and amplify the inklings of emotional reaction that might be evoked.

**Other People.** If the person with schizophrenia does not experience himself as emotionally coherent and vital, then he may not be able to imagine others in that way. The flatness and lack of meaning apply also to the perception of people, making it difficult to feel their humanity or to view them as sources of emotional warmth.

Renée, Sechehaye's patient, describes perception that has been stripped of meaning. The links and connotations that would enliven the schoolroom scene are missing, and so the situation is stark and lacks a human touch:

During class, in the quiet of the work period, I heard the street noises—a trolley passing, people talking, a horse neighing, a horn sounding, each detached, immovable, separated from its source, without meaning. Around me, the other children, heads bent over their work, were robots or puppets, moved by an invisible mechanism. On the platform, the teacher, too, talking, gesticulating, rising to write on the blackboard, was a grotesque jack-in-the-box. [Sechehaye 1970, p. 24]

People's eyes are particularly piercing. Since they are a natural focal point that people fixate upon when they talk to one another, another person's gaze is a common starting point for the capture of attention and the misperception that

follows upon this. Other people are bewilderingly complex to the paranoid patient: their casual glances in his direction arouse his suspicion, and when he scrutinizes them for further clues, his attention is captured in a paranoid stare that exaggerates their spurious significance and the threat they pose to him:

A custodian's eyes attracted my attention; they were especially large and piercing. He looked very powerful. He seemed to be "in on it," maybe he was giving medicine in some way. Then I began to have the feeling that other people were watching me. [Bowers 1974, p. 186]

Because of the power of other people to hold the schizophrenic patient's attention, it is easy for him to become entangled with them. If he cannot shift his attention away from what the person is saying to him, there may be times when the other person's train of discourse imposes itself on his attention, and that person may, in some eerie way, be more effective in moving the patient's thoughts in an associative direction than he is himself.

Even when other people are not devoid of meaning, they may present a dangerous ambiguity. The patient may be disturbed by the unusual significance of what they are saying without being clear about the meaning of the words they speak:

I am good at disguising the difficulty I often have in picking up what people say, especially if I am distracted by something. . . . Problems with my normal "facade" arise mainly when other people expect me to become emotionally involved with them. I find emotions tremendously complex, and I am quite acutely aware of the many over- and undertones of things people say and the way

they say them. [Anonymous 1981, p. 197]

In addition, if the patient cannot turn his attention away to ignore people who intrude upon him and criticize, he is unusually defenseless. He may need to get relief by physically leaving their presence, as studies of families' expressed emotion have shown (Brown, Birley, and Wing 1972).

**Relocation of the Source of Agency.** Without the capacity to focus and to formulate what he wants to do, the schizophrenic risks receding as the motivating force in his own life. His actions are interrupted and sometimes aimless as they appear to lose intent halfway through. Manschreck and colleagues (Manschreck, Maher, and Ader 1981; Manschreck et al. 1981) found that even simple voluntary movements such as shaking hands or clapping were disrupted in schizophrenic patients, and that the disturbance of movement correlated with disturbed thinking. Malenka et al. (1982) found that impaired motor performance in schizophrenic subjects could be related to a deficiency in the way in which they represented and monitored the movements they intended. White (1965) has suggested that in the absence of a sense of efficacy which comes from performing an action guided by directed effort, the schizophrenic patient suffers a basic feeling of incompetence.

These studies suggest that the patient's thought disorder makes it difficult for him to think through a course of action. His inability to give his own meaning to what he perceives because of spurious illusions of significance interferes with his capacity to formulate reasons for action. Perception empty of meaning removes any motive to act. The

thoughts and actions that he performs do not have *his* stamp upon them, because in some basic, experiential sense, it does feel as if *he* has initiated them. They are like guesses in that they are not fully informed by a purpose. This leads the person to feel that he does not work in some basic way:

Things just happen to me now and I have no control over them. I don't seem to have the same say in things any more. At times I can't even control what I want to think about. I am starting to feel pretty numb about everything because I am becoming an object and objects don't have feelings. [McGhie and Chapman 1961, p. 109]

It becomes harder for the patient to be an agent on his own behalf. He cannot channel stirrings of emotion into consciousness in a way that locates and focuses this latent part of himself so that he connects with himself. Consciousness is a method of amplifying the hunches and hankerings that arise as barely detectable ideations. By directing attention to them, we make them clearer and more identifiable, and in the process, we bring parts of ourselves that are subtle or imminent into view. Given the unwieldy nature of schizophrenic consciousness, it is much more difficult for the patient to gain access to himself in this way. He cannot so easily direct his attention, or put himself into the right frame of mind so that he can notice and discover further the vague pangs and urges that arise within him. The direction that we impose on our thoughts, as well as the way in which they carry out our plans, makes mental life an intrinsically personal life. But for the patient, mental activity is not instrumental in this way, since it does not give expression to an inner life. Objects

don't have feelings; only people who connect with themselves do.

Some patients give up the struggle to assert themselves and instead lose themselves further in rhythmic mannerisms that trap attention and further close down the mind. The self hardly exists as an experienced continuity that imposes its will on thought and action. For these patients, the locus has shifted outside of themselves—their attention is caught by details, their thoughts drift waywardly with a life of their own, their internal states cannot be formulated and so cannot be translated into action, and the center no longer lies within them. Their sense of self is lost, and they undergo experience that hardly seems to be their own.

**The Temptation of Delusions.** In many schizophrenic patients there is a gradual progression from delusions and hallucinations to a defect state characterized by fading of the emotional coloring of experience and a lack of personal significance in events (Pfohl and Winokur 1982), although this trend may not be evident during the first 5 years (Pogue-Geile and Harrow 1985).

The loss of self is a gradual process attended by vagueness. As in other processes in which the intellect is affected, the patient goes through an early stage in which it is possible to deny the changes that are taking place, and a later stage in which the failings themselves prevent awareness. In between is a stage of alarm in which the person retains enough insight to be aware of what he is losing. As the "Influencing Machine" (Tausk 1919/1933) takes over more and more, the person is slowly vacated:

... the most sacred monument that is erected by the human

spirit, i.e., its ability to think and decide and will to do, is torn apart by itself ... things ... are done by something that seems mechanical and frightening, because it is able to do things and yet unable to want to or not to want to. [Meyer and Covi 1960, pp. 215–216]

The person feels himself slipping away as his emotional responses to people and activities fade. At the same time his attention is attracted to people and events about him. The significance that the patient has foisted upon him is spurious, but he must react in some way. The perception of a heightened significance without any ready explanation for it results in a "mental diplopia" (Penfield and Rasmussen 1950, p. 225) which can be resolved, either by suppressing the image of the world as holding any significance—in effect turning one's back on perception—or by remaining connected to the world by accepting the significance and risking delusion.

Some authors (e.g., McGhie and Chapman 1961) have viewed the apathy of the patient with negative symptoms as a way of countering stimulation that he cannot regulate and that would otherwise flood him. To some extent, this "choice" may represent an existential stance (McGlashan 1982). Clinical experience, however, suggests that the active process lies not so much in the person turning away from the world as in turning toward delusion. Delusions hold an attraction of their own, like a temptation. The following description is all the more remarkable for the fact that it was written by a medical student with a doctorate in psychology:

When someone told me later that I was delusional, though, I seemed to know it. But I was really groping to understand what was going on. There was a se-

quence with my delusions: first panic, then groping, then elation at having found out. . . . There were times when I was aware, in a sense, that I was acting on a delusion. One part of me seemed to say, "Keep your mouth shut, you know this is a delusion and it will pass." But the other side of me wanted the delusion, preferred to have things this way. [Bowers 1974, p. 187]

The delusional perspective offers intensity, involvement, and purpose—precious qualities to someone who feels himself slipping away into negative symptomatology. Delusions have a power and a vitality which can counteract the creeping numbness of the defect state:

What's so "special"? Well, the times when colors appear brighter, alluring almost, and my attention is drawn into the shadows, the lights, the intricate patterns of textiles, the bold outlines of objects around me. It's as if all things have more of an existence than I do, that I've gone around the corner of humanity to witness another world where my seeing, hearing, and touching are intensified, and everything is a wonder. [McGrath 1984, p. 639]

Delusions make experience vivid. Suspicion brings drama and involvement into the paranoid person's life, and restores some fervor and purpose to him. In addition, delusions may provide a psychological splint that stabilizes certain lines of thought (albeit pathological ones) and gives a greater sense of intrapsychic connectedness. The durability of delusions when so much of the rest of the patient's psyche is disrupted attests to this possibility. For example, the way in which the cosmic delusions of some patients withstand the otherwise fragmenting effects of formal thought disorder suggests that delusions may be

privileged, and the patient's endless repetition of his beliefs to anyone who will listen may be an attempt to preserve this last remaining mental conduit between himself and the world. In this sense, delusions keep alive a certain kind of hope, and perhaps the desire to be crazy (Van Putten, Crumpton, and Yale 1976) and the need to recruit others (Searles 1965) become more understandable when the alternative—the loss of self—is considered.

## Conclusion

The capture of attention is a common phenomenon. It appears in patients with both positive and negative symptoms, and it may be induced in people who do not have schizophrenia by the conditions of a psychological experiment, recreational drug use, L-dopa (Sacks 1976), meditation, mystical states (James 1902/1936), or an aesthetic experience. Possibly some impending episodes of schizophrenia are aborted at this benign stage. It need not lead to psychosis. Paranoia appears to require more than a perceptual disorder, and a further instability of attention would seem necessary to bring about a state of schizophrenia. It is likely that the ataxia of attention becomes pathological when it involves a failure of the inward focus, and that one crosses the line from perceptual illusion to delusion when one is unable to frame and follow an introspective theme.

The inability of the patient to impose his own focus on his thinking results in a breakdown of perception and cognition to a lower level of organization. Following Bleuler (1911/1950), I have suggested that some of the symptoms of schizophrenia stem from a basic inability to direct and maintain a focus of at-

tention, both outward in perception and inward in introspection. In this view, delusions are produced by the interplay of four factors: the capture of attention by incidental details imbues them with a spurious significance; the perceptions are not placed in a context of background knowledge; this results in the coming to awareness of hasty and alarming appraisals by preattentive processes; finally, the importance of these ideas is enhanced when they in turn capture attention. Delusions are not static phenomena, however, nor are they always held with all-or-nothing conviction (Sacks, Carpenter, and Strauss 1974; Hole, Rush, and Beck 1979; Kendler, Glazer, and Morgenstern 1983). Often the degree of conviction changes over time, suggesting that changes in the capacity to monitor experience by tapping background knowledge and the power of preattentive processing to impose itself on thought may underlie changes in the patient's clinical state.

Differences in the balance of these factors may account for some of the changes from a positive to a negative symptomatology. Whereas patients with positive symptoms find too many things of significance, patients with negative symptoms suffer from a profound lack of meaning in their lives—too little matters to them or interests them. Patients with negative symptoms have difficulty in directing attention to find associations and to amplify the intuitive responses to what they perceive, but unlike paranoids, patients with negative symptoms find little to fill the vacuum. This is reflected in differences found by Cornblatt et al. (1985): whereas positive symptoms are associated with an abnormal lability of attention, making the patient distractible because his attention is easily captured, negative



symptoms are associated with a deficit beyond the perceptual stage of calling attention, by an inability to switch attention between different perceptual foci and memory. It is this failure of the inward focus, I am suggesting, that makes the world of the patient with negative symptoms appear "flat," meaningless, and boring.

Instead of the autonomous elaboration of fragments from long-term memory under the influence of preattentive processing in paranoid patients, there are no plots or hidden signs that occupy the attention of patients with negative symptoms. Their attention may be captured, but when this happens, patients with negative symptoms seem to experience little in the way of an abnormal sense of significance:

Everything seems to grip my attention although I am not particularly interested in anything. . . . Often the silliest little things that are going on seem to interest me. That's not even true; they don't interest me but I find myself attending to them and wasting a lot of time this way. [McGhie and Chapman, 1961, pp. 104-105]

It is not clear why, in the absence of an intentional focus to thought, a substitute topic does not engage attention as it does in paranoid patients. Perhaps there is a general lowering of intensity of the spontaneous processes in mental life, such as intuition and affect, so that there is little activation of associations in long-term memory or insufficient priming of preattentive processes to give them "call" upon attention. These nonspecific effects are similar to those seen in mental retardation or as sequelae of closed head injury, and they are consistent with the numerous studies showing evidence of diffuse neurological dys-

function in patients with negative symptoms (e.g., Owens and Johnstone 1980). It remains unclear which comes first: whether a lack of emotion leaves attention aimless and without propulsion in one direction or another, or whether the emotional life atrophies if it is not amplified and fostered by attention being directed upon it.

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