



psychedelics

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*The Uses and Implications
of Hallucinogenic Drugs*

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SCHENKMAN PUBLISHING COMPANY
CAMBRIDGE, MASSACHUSETTS, U.S.A.
LONDON, ENGLAND
1971

THE EFFECTS OF
PSYCHEDELIC EXPERIENCE
ON LANGUAGE FUNCTIONING

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A. J. Ayer (1946, p. 65) once claimed, ". . . we are unable, in our everyday language, to describe the properties of sense-contents with any great precision, for lack of the requisite symbols. . . ." Ayer's statement about normal, everyday perception has even greater application when chemically altered perception is considered. The difficulties subjects have in describing their experiences are compounded by the difficulties experimenters often have in interpreting these reports in terms of some organizational structure.

One of the more successful attempts to organize subjective reports of psychedelic experience has been made by R. E. L. Masters and Jean Houston (1966). Having guided and observed 206 subjects through a large number of LSD and peyote sessions, Masters and Houston proposed the existence of four levels of mental functioning in the psychedelic state: sensory, recollective-analytic, symbolic, and integral.

At the first, or sensory, level, the subject may report a changed awareness of the body, unusual ways of experiencing space and time, heightened sense impressions, synesthesia ("feeling sounds," "hearing color"), and—with the eyes closed—vivid visual imagery. Experiences at the sensory level tend to "decondition" a subject, to loosen his habitual conceptions, and to ease the rigidity of his past imprinting.

At the second, or recollective-analytic, level, the subject's reactions become more emotionally intense. He may relive periods of his life. He may formulate insights into himself, his work, and his personal relationships.

Only 40 per cent of Masters and Houston's subjects reached the third, or symbolic, level. At this level, visual imagery generally involves history and legend, or the subject may recapitulate the evolutionary process, developing from

primordial protoplasm to man. He may also embark upon a "ritual of passage" and imagine himself participating in a baptismal ceremony or a puberty rite.

Eleven per cent of Masters and Houston's subjects reached the fourth, or integral, level, at which religious or mystical experiences occur. Masters and Houston have described the religious experience as a confrontation with "the Ground of Being"; they contrast it with mystical experience, which they see as a dissolution, as a merging of the individual with the energy field of the universe. One woman related, "All around and passing through me was the Light, a trillion atomized crystals shimmering in the blinding incandescence."

The Evolution of Language

Like psychedelic experience, human language processes may be studied at four different levels. The development of social language begins at the approximate age of nine months, with the acquisition of a simple listening vocabulary (Lewis, 1959). By one year, most children have spoken their first word. In the American culture, two other forms of language—reading and writing—are usually introduced when the child enters school, although some children acquire these before formal education begins. Speaking and writing are expressive, and involve encoding one's experiences; listening and reading are receptive, and require decoding of another person's attempts to communicate. Speaking and listening have developmental priority over the visual activities of writing and reading.

Language may be defined as a structured system of arbitrary vocal sounds and sound sequences, or a system of written or printed symbols that represent vocal sounds. A language system is used in social, interpersonal communication, and rather exhaustively catalogues the objects, events, and processes in the human environment.

The origins of oral language go back over a million years. Primitive man kept no written records and lost the words he uttered in time and space. Writing started only a few thousand years ago, when man developed hieroglyphics and ideographs to represent visible objects. Among the cultures bor-

dering the Mediterranean, these standardized sets of pictures gave way to phonetic alphabets, in which the written symbol stands not for an object, but for a sound.

The alphabet restructured not only man's method of communicating, but also his very conception of the time-space milieu. The alphabet arrested words in spatial rather than temporal segments, and literate human cultures began to conceive of the universe in terms of linear space diagrams as well as temporal cycles. The day-night cycle, the life-death cycle, and other recurring events gave way in importance to conceiving events as historical, linear, and exhibiting cause-effect relationships.

For several centuries, the development of the alphabet affected most people indirectly in the cultures where it was used. Written language was difficult to master; its utilization was often reserved for scribes, philosophers, and priests. The invention of the printing press and movable type made reading a common skill and, according to Marshall McLuhan (1964), further exploded the tribal world and led to the fragmentation of society and to the specialization of mankind's functions. The priestly monopoly on knowledge and power came to an end.

The technical and cultural achievements resulting from movable type show the tremendous impact of literacy. However, the linear structuring of rational life forced the Western world to regard consciousness as sequential, and brought about its habit of investing events with cause-effect relations. As Western man became dissociated from the tribe and from direct experience, visual sequencing became the key skill used in examining and storing the symbolic record of his accomplishments.

Just as the voice-and-ear stage of language once gave way to what Walter Ong (1967) has referred to as the "chirographic-typographic" stage (dominated by the alphabet and the printing press), so this stage is now giving way to an electronic stage. Television, telephone, radio, phonograph, film, and recording tape have reinstated the importance of sound in communication. These media also convey a sense of simultaneity in time and space. A new aural structure is being superimposed upon the old visual structure of the chirographic-

typographic stage. As technology unites the scattered human cultures into a new solidarity, the contemporary individual must have all cultures present within him simultaneously in order to be realized as a human being.

At the same time that the electronic stage is extending man's exploration outside the body, it is creating a desire for exploration of the individual's inner world. One example is the widespread interest in psychedelic substances. Many Americans, having ingested these chemicals, echo McLuhan's and Ong's theories. They state that their psychedelic episodes bring about "a sense of simultaneity in time and space," and "a sense of solidarity with all the people in the world." Others gather into drug or "hippie" subcultures, in which tribal rites are enacted, in which bright Indian clothes and primitive body markings are worn, and in which an intense sense of community often develops.

A limited number of attempts have been made to investigate the effects of psychedelic experience on either receptive language (listening and reading) or expressive language (speaking and writing). The four levels of psychedelic experience (sensory, recollective-analytic, symbolic, integral) provide an organizational structure in which this area may be explored and discussed.

Receptive Language

Trouton and Eysenck (1961) have pointed out that psychedelic experience is influenced not only by factors related to drug administration, but by personality, physiology, set, and setting. In their account, they also mention "suggestion" and "reinforcement of responses by the experimenter," which suggests the importance of language in determining how a subject reacts.

The ritual developed by the Native American Church illustrates the use of language to produce a positive set and setting for the ingestion of peyote. A ceremonial leader, the head chief, initiates the singing of songs and co-ordinates requests by individuals for special prayers. The ritual is so arranged and so co-ordinated to the needs of the communicants

that the maximum possible likelihood of a positive spiritual experience is enhanced (Flattery and Pierce, 1965).

Language, however, may also be used to develop a negative set and setting. Jean Houston (1967) has described one of her initial observations of LSD administration. The subject was told by the psychiatrist that he would have "a terrible, terrible experience" filled with "strong anxiety and delusions." The drug was administered in an antiseptic hospital room with several observers in white coats watching him. As the effects came on, the psychiatrist asked such questions as, "Is your anxiety increasing?" At the end of the experiment, the subject was in a state of panic. The psychiatrist announced to the group that LSD is indeed a "psychotomimetic" substance, which induces psychotic behavior.

Listening is the receptive process by which aural language assumes meaning. As listening involves attending to a stimulus, the act often includes a commitment to respond in some way to the messages that are received. The Native American Church communicants commit themselves to a positive experience while the unfortunate subjects of poorly handled LSD experiments commit themselves to a negative experience. In both cases, language plays a key role in determining which way the commitment will turn.

A vivid description of a psychedelic session has been given by Alan Watts (1962). This description demonstrates how the quality of what is listened to may change as the listener shifts from the sensory to the recollective-analytic, symbolic, and integral levels.

I am listening to the music of an organ. . . . The organ seems quite literally to speak. There is no use of the *vox humana* stop, but every sound seems to issue from a vast human throat, moist with saliva. . . . (p. 33)

This is the sensory level of the psychedelic experience. Perceptual changes have transformed the organ music into a human voice. Sense impressions other than aural take form as Watts speaks of "a vast human throat, wet with saliva."

I am listening to a priest chanting the Mass, and a choir of nuns responding. His mature, cultivated voice rings with the serene authority of the One, Holy, Catholic, and Apostolic Church, of the

Faith once and for all delivered to the saints, and the nuns respond, naïvely it seems, with childlike, utterly innocent devotion. But listening again, I can hear the priest "putting on" his voice, hear the inflated, pompous balloon, the studiously unctuous tones of a master deceptionist who has the poor little nuns, kneeling in their stalls, completely cowed. Listen deeper. The nuns are not cowed at all. They are playing possum. With just a little stiffening, the limp gesture of bowing nuns turns into the gesture of the closing claw. With too few men to go around, the nuns know what is good for them: how to bend and survive. (p. 37)

This is the recollective-analytic level, at which memories and insights often occur. Watts is listening to a recording of the Mass, but suddenly perceives a pompous quality to the priest's tones. Going deeper into the analysis of what he hears, Watts discovers that the nuns' response displays more than obedience—it is their shrewd way of playing the game of survival.

But this profoundly cynical view of things is only an intermediate stage. . . . In the priest's voice I hear down at the root the primordial howl of the beast in the jungle, but it has been inflected, complicated, refined, and textured with centuries of culture. . . . At first, crude and unconcealed, the cry for food or mate, or just noise for the fun of it, making the rocks echo. Then rhythm to enchant, then changes of tone to plead or threaten. Then words to specify the need, to promise and bargain. And then, much later, the gambits of indirection. The feminine stratagem of stooping to conquer, the claim to superior worth in renouncing the world for the spirit, the cunning of weakness proving stronger than the might of muscle—and the meek inheriting the earth. (p. 38)

This is the psychedelic experience's symbolic stage. The priest's voice reflects the evolutionary process; the nuns' response echoes female archetypes.

As I listen, then, I can hear in that one voice the simultaneous presence of all the levels of man's history, as of all the stages of life before man. Every step in the game becomes as clear as the rings in a severed tree. . . . I, as an adult, am also back there alone in the dark, just as the primordial howl is still present beneath the sublime modulations of the chant. . . . Down and at last out—out of the cosmic maze . . . , I feel, with a peace so deep that it sings to be shared with all the world, that at last I belong, that I have returned to the home beyond home. . . . The sure foundation upon which I had sought to stand has turned out to be the center from which I seek. (p. 39)

This is the integral stage of the psychedelic experience. Watts sees himself in the voice of the priest and in all the precursors of that voice. His "home beyond home" and "sure foundation" is the very center of his being.

Reading, the assigning of meaning to perceived printed symbols, also plays a key role in some psychedelic sessions. In one experiment (Jarvik et al., 1955), subjects ingested one hundred micrograms of LSD and demonstrated an increase in their ability to quickly cancel out words on a page of standardized material, but a decreased ability to cancel out individual letters. The drug seemed to facilitate the perceptions of meaningful language units while it interfered with the visual perception of non-meaningful ones. Corroborative experimental data are lacking, but a number of clinical cases suggest that if the meaning of printed symbols happens to dovetail with the ongoing psychedelic experience, the symbols will be perceived quickly. If their meaning does not happen to tie in with the experience, the words may not be perceived at all.

One subject became fascinated by a newspaper headline and reportedly was able to read the entire article at a distance of thirty feet (Newland, 1962). Another subject, who became interested in studying famous paintings after ingesting thirty milligrams of psilocybin, assertedly lost his reading ability entirely while under the influence of the drug.¹

In college, I had studied central nervous system dysfunction and knew that psycholexia is a condition in which a person has difficulty attaching meaning to printed symbols. I experienced a similar condition after the psilocybin began to take effect.

I glanced at my watch but could make no sense out of the numerical symbols. I looked at an art magazine. The pictures were beautiful, almost three dimensional. However, the script was a jumble of meaningless shapes.

The same subject, near the end of his "psilocybin high," reported still another alteration in the reading process:

Earlier, I had tasted an orange and found it the most intense, delightful taste sensation I had ever experienced. I tried reading a magazine as I was "coming down," and felt the same sensual delight in

¹ Except in those cases where a reference is cited, all first-person reports are from the files of the author.

moving my eye over the printed page as I had experienced when eating the orange.

The words stood out in three dimensions. Reading had never been such a sheer delight and such a complete joy. My comprehension was excellent. I quickly grasped the intent of the author and felt that I knew exactly what meaning he had tried to convey.

In the former instance, motivation for reading was low, since the subject was interested in studying art prints. In the latter episode, the pleasure of eating an orange permeated the act of reading a magazine, which then became a delightful experience.

The cases cited above both involved the sensory level of psychedelic experience. Masters and Houston (1966) presented an intriguing example of a subject who visualized a reading experience while at the recollective-analytic level of his LSD session:

I recalled detail that under ordinary conditions I could not possibly have remembered, including the address on an envelope of a letter that a friend had sent me some years before—an important letter, since it had great significance for me during my analysis. I saw the envelope in front of me, in my mind's eye, recalled the handwriting, and recited the street number and street. (A few days later I went to an attic where I had old letters put away, dug into a dust-laden box, and took out crumpled and yellowing old papers. There, among them, I found the envelope, just as I had recalled it, and the details of the address were correct, entirely correct.)

P. G. Stafford and B. H. Golightly (1967, pp. 140-41) have cited the account of a student who utilized the recollective-analytic level to practical advantage, learning enough German in a week to enroll for an advanced course in the subject:

I hadn't even gotten around to picking up a textbook, but I did have a close friend who knew German well and who said he was willing to "sit in" while I took the drug and try to teach me the language. . . .

The thing that impressed me at first was the delicacy of the language. . . . Before long, I was catching on even to the umlauts. Things were speeding up like mad, and there were floods of associations. . . . Memory, of course, is a matter of association, and boy, was I ever linking up to things! I had no difficulty recalling words he had given me—in fact, I was eager to string them together. In a couple of hours after that, I was even reading some simple German, and it all made sense.

By the time the student finished the LSD session, he had "fallen in love with German." He secured the original German text and an English translation of Mann's *Doctor Faustus*. By the time he had finished the novel, he found that he was scarcely referring to the English version. He also discovered that in having read *Doctor Faustus*, he had developed a feeling for grammar structure and word endings that was "almost intuitive."

When he registered for the second-year college course in German the following week, the instructor expressed skepticism when he heard that the student was self-taught. Upon testing him, however, it was evident that the student's German reading comprehension was more than adequate, and he was allowed to enroll for the course.

Also at the recollective-analytic level fall the examples of renewed spiritual inspiration from reading of sacred literature. Biblical passages or religious terms formerly meaningless sometimes acquire vivid meanings for many readers. Like the individual who through conversion experience suddenly finds himself in possession of the meaning of the term "salvation," so the LSD subject may find similar terms illuminated for him (Leary and Clark, 1963).

An example may be cited of an individual who found significant meaning in a biblical passage during a session with morning-glory seeds:

Upon opening my eyes, I found that I was facing the bookcase. The first book that I perceived was the Holy Bible. I seized it and flung it open. Strangely, the smooth, burnished pages felt like human skin. I fondled, kissed, and caressed the pages. For the first time in several hours, I had found some degree of tranquility.

I looked at the page I had selected and found that my finger was directly above Ezekiel 11:24. The words of this verse, as well as the one directly following it, described my liberation from the more terrifying aspects of the psychedelic experience as well as the importance of communicating my experience to others. They read, "Then the vision that I had seen went up from me. And I told the exiles all the things that the Lord had showed me."

As I read on, I found a new interpretation for the twelfth chapter of Ezekiel. The prophet spoke of a "rebellious house" and of people—perhaps in need of psychedelic substances—who have "ears to hear and hear not." The injunction of Ezekiel 12:13 is to "eat your bread with quaking, and drink water with trembling," an appropriate de-

scription of the consumption of psychedelics. Ezekiel 12:23-24 states that "the days are at hand and the fulfillment of every vision." Everything I read under the spell of the morning-glory seeds became directed toward the psychedelic experience.

Once again, in this instance, there was an integration of the act of reading into the ongoing psychedelic experience. As a result, a number of "connections" were discovered that would have eluded the subject had he not ingested morning-glory seeds. This phenomenon is surprisingly common among frequent LSD users; their belief in the direct interrelations among most of the events of their lives may well influence their behavior and their view of the universe.

The reading process is rarely associated with the third or fourth levels of psychedelic experience, but some individuals have been catapulted into a deeply moving symbolic or integral episode following a chance glimpse of a line of Hebrew script or of an Egyptian hieroglyphic. In other cases, a line of print has occurred at the end of a segment of the experience and has seemed to summarize it. One subject reported such an episode at the symbolic level during a mescaline session:

I was propelled back into time, back into the primeval jungle. I saw two savages stalking each other in the underbrush. Each savage carried a bow and arrow. Each was prepared to kill the other upon sight. Blood was on their minds; murder was in their hearts.

Suddenly, each saw the other. Each gasped in surprise. Each dropped his bow. The two bows fell together on the ground, forming a mandala. The arrows fell upon the mandala, dividing it into four sections.

The savages fell upon each other—but in an embrace rather than in an assault. As they strolled into the jungle to enjoy their newly discovered companionship, the mandala turned into a white button. Upon the button, in red and blue, appeared the words, "Make love, not war."

During one of my own psilocybin experiences I had an unusual visualization. I pictured a whirlwind carrying away all the words, letters, numbers, and verbal symbols that had acculturated and conditioned me throughout the years. One might say that my session was a form of non-verbal training, a dramatic confrontation with naked events that reminded me not only of the awareness encountered among preliterate tribes, but also of Alfred Korzybski's writings in the field of general semantics (1933).

Korzybski considered man's consciousness of the abstraction process to be the most effective safeguard against semantic problems (such as confusing words with objects) and the key to further human evolution. Consciousness of abstraction was defined by Korzybski as an "awareness that in our process of abstracting we have *left out* characteristics." An individual apprehends himself and his world fully and accurately to the degree that he continually translates higher-order abstractions back to the level of concrete experience. An individual is "sane" to the extent that he becomes experientially aware of the discrepancy between conceptualization and sense impressions. Developmentally, man (both as a species and as an individual) progresses from the preliterate stage (in which he is enmeshed in concrete experience) to the early literate stage (in which he confuses words with things and becomes split off from non-verbal reality) to a fully developed literate stage (in which he uses the printed word but does not confuse it with the object for which it stands).

Robert Mogar (1965c) has stated that, at its best, the psychedelic state can permit the individual to evaluate with some detachment both the structure of his semantic framework (i.e., its similarity to reality) and his semantic reactions. These two kinds of learning were strongly recommended by Korzybski as the most effective means of increasing one's consciousness of the abstracting process.

Richard Marsh (1965) has described how, under LSD, "we seem to come up against that part of our inner world where meanings are made, where the patterning process operates in its pure form." He has further noted that, semantically, the condition of being absolutely present to the outer and the inner reality has at least two advantages. First, it allows a person to tune in on that feedback, both external and internal, that enables him to correct his own errors in encoding. He is able to reduce the noise level in the various communication systems in which he is involved by re-encoding his message streams until they convey the meanings that he intends them to convey. Secondly, it allows a person to inhabit the world of the actual, the world of fact, instead of the unreal and empty world of the prefabricated abstrac-

tion. It allows him to experience the world instead of merely to think about it, and perhaps to begin to live in it at last.

Marsh's claim that a new level of reality is opened up by the psychedelics is a controversial one. It is a further step in the perpetual dialogue concerning language and reality. As long as men have reflected about their world, this basic issue has divided them. Some men have regarded man's language as a straightforward reflection of reality. Others have looked upon language as a reducing valve imposed by the limitations of man's consciousness upon the unlimited varieties of his internal and external world (Krippner, 1965). Aldous Huxley (1959, p. 22) has described the role that verbal and written symbols play in helping mankind to utilize this limited consciousness:

To formulate and express the contents of this reduced awareness, man has invented and endlessly elaborated those symbol-systems and implicit philosophies which we call languages. Every individual is at once the beneficiary and the victim of the linguistic tradition into which he or she has been born—the beneficiary inasmuch as language gives access to the accumulated records of other people's experience, the victim insofar as it confirms him in the belief that reduced awareness is the only awareness and as it bedevils his sense of reality so that he is all too apt to take his concepts for data, his words for actual things.

The psychedelic session as non-verbal training represents a method by which an individual can attain a higher level of linguistic maturity and sophistication. On the other hand, some psychedelic episodes have been reported in which an apparent regression took place, in which language was concretized—the letters becoming transformed into images and objects. One subject, while smoking marijuana, looked at a magazine cover and reported a concretization experience:

The magazine featured a picture story about Mexico, and the cover featured large letters spelling out the name of that country. As I looked at the letters, they turned into Aztec men and women. They retained their shape as letters, but subtle shades and shadows became eyes, heads, arms, and legs. That part wasn't so bad, but when Aztecs began to move across the page, I quickly turned the magazine over!

The concretization of letters has been put to artistic use by illustrators throughout the centuries (Mahlow, 1963). For

example, Ferdinand Kriwet designed a mandala composed of nothing but several hundred capital letters. Joshua Reichert produced another mandala that consisted of several types of script. A number of contemporary poster artists have publicized "acid rock" musical performances by producing advertisements that fuse the letters with the pictures, making the names of such groups as "The Grateful Dead" and "The Byrds" an integral part of the over-all design, thus combining the "medium" and the "message." The "psychedelic poster" has, within a few years, become an original art form (Masters and Houston, 1968).

The variety of effects that psychedelics have upon receptive language functioning have at least one factor in common: they point up the role that language as a "connecting system" plays in verbal memory (Hastings, 1967). Electric brain stimulation and hypnosis have been able to retrieve long-forgotten memories; psychedelic drugs often produce similar effects, especially at those periods of time when subjects are at the recollective-analytic level.

Physical shock and psychic trauma often lead to the forgetting of verbal material or a regression in verbal functioning. In these cases, the "connecting system" breaks down, just as it does in certain episodes with psychedelics. Henri Michaux (1967) has stated, "After an average dose of hashish, one is unfit for reading." Other artists and writers, however, say that they appreciate receptive language (e.g., listening to poetry, reading novels) even more when they are "high." A great deal of research is needed to explore the variables that determine what effects psychedelics have upon language as it connects one's past memory with his present experience.

Expressive Language

A number of investigators have reported a reduction or even an absence of speech among LSD subjects. Some writers have suggested that these drugs suppress activity in the cortical levels of the brain, where the speech centers are located. J. H. Von Felsinger and his associates (1956), for example, noted that there was "a slowing down of speech and expres-

sion" with their LSD subjects, none of whom were psychiatric patients. On the other hand, Morgens Hertz, a Danish physician, described a patient whose long-standing stuttering condition disappeared following LSD treatment (Stafford & Golightly, 1967, p. 113). An American team of researchers found that schizophrenic children became more communicative following LSD treatment (Bender, Goldschmidt, and Siva Sankar, 1956). As with the other types of language, the alteration of expressive language under LSD can take a variety of forms, depending on how it happens to mesh with other aspects of the psychedelic experience.

One research team (Lennard, Jarvik, and Abramson, 1956) studied the effects of LSD on group communication, using both an experimental group of subjects and a control group. The subjects in the control group increased their verbal output during the observation period, while among those who had taken LSD there was a reduction in word output. In addition, the subjects who took LSD asked more questions and made more statements pertaining to orientation (e.g., "What's happening?" "Where am I?") than those in the control group. These findings are consistent with the typical reactions of subjects at the sensory level when traditional time-space orientation is lost.

Another reason for reduced verbalization during psychedelic sessions may be the presence of visual imagery. When an individual becomes involved in "the retinal circus," he often loses interest in speaking. Finally, relaxation and lethargy often mark a subject's first experiences with the psychedelics. In these instances, the speech muscles would be inoperative, and verbalization would be reduced still further.

E. S. Tauber and M. R. Green (1959) have discussed the difficulty in talking about visual imagery and trying to communicate it to someone else. Not only is there a difficulty in translating one's own private world into meaningful public symbols, but there is also a kaleidoscopic piling up of many different images and meanings. Speech is the vocal expression of one's experiences and feelings in verbal symbols; wherever communication involves much more than language can adequately express, there is a high probability of serious gaps, misunderstandings, and improper inferences. Tauber and

Green have stated, ". . . the communication of dream material perhaps most strikingly illustrates the weakness of the tool of language." Much the same could be said of psychedelic experience at the sensory level; this may be another reason why speech often is reduced during a subject's initial LSD experiences.

The description of visual imagery is not the only communication problem that faces the LSD initiate. At the sensory level, there is often an increased awareness of bodily feelings. Preliterate tribes paid great attention to these feelings, but the American culture generally ignores them, unless they are unpleasant. Those words that most quickly come to mind during periods of acute bodily awareness are "sick to my stomach," "pains in my back," and "nagging headache." Once these words become linked to what may be quite natural (and potentially pleasurable) sensations, an individual may very well get sick, regurgitate, and interpret the rest of his psychedelic session as unpleasant.

It is in this regard that the work of Russell Mason on internal perception (1961) assumes importance. Although Mason's experiments did not involve psychedelic drugs, they could serve as models for what can eventually be done with such substances. He asked subjects to specify where various kinds of feelings were located. Love and friendliness, for example, were associated with the central chest area, sexual feelings with the genital-pubic area. He concluded, ". . . the ability of the individual to permit *immediate awareness* of . . . non-cognitive internal perceptions appears to be necessary for healthy psychological adjustment." His data offer a possible physiological explanation for the body changes that take place when drug subjects report feelings of "oceanic love" or "strong sexual responses." They also suggest that persons who are unable to allow this immediate awareness to take place may be poor risks for LSD sessions.

Masters and Houston (1966) have reported statements from a number of subjects who purportedly "felt" the interior of the body during psychedelic experiments. One subject told about sensing his "interior landscape," describing the "trees, vines, streams, waterfalls, hills, and valleys" of the body. Another described the sensation of blood flowing

through his veins as well as the receiving and transmitting operations of the nervous system. All these reports characterize the first, or sensory, level of psychedelic experience.

The verbal reports associated with the recollective-analytic and symbolic levels are somewhat different. For example, one subject at the recollective-analytic level reported the insight to Masters and Houston, "I have never been in love with my own body. In fact, I believe that a major emotional problem in my life is that I have always disliked it." At the symbolic level, a number of subjects experience bodily sensations in terms of a mythic drama. One anthropologist reported going through a Haitian transformation rite in which his body began to take on aspects of a tiger (Masters and Houston, 1966, pp. 76-78).

At the integral level, bodily sensations are also reported. One of Masters and Houston's subjects had a mystical experience in which he was ". . . overwhelmed by a bombardment of physical sensations, by tangible sound waves both felt and seen," after which he "dissolved." He later stated, "Now I understand what is meant by being a part of everything, what is meant by sensing the body as dissolving."

A great deal of research is needed to correlate the data on bodily sensations with the data on LSD. One important hypothetical formulation that would be helpful in effecting this correlation was presented by Gardner Murphy and Sidney Cohen in 1965. Murphy and Cohen suggested that psychedelic drugs lower the threshold for internal sensations, especially those from the digestive system, the sex organs, and the striped muscles. As a result, body feelings emerge into self-consciousness, and an individual may interpret the experience as one of "cosmic love." Murphy and Cohen also hypothesized that there was a direct relationship between certain physiological sensations and such verbal reports as "entrance into the void."

In considering the effects of psychedelic substances upon speech, attention could be paid not only to the physiological determinants but to the psychological concomitants of the experience. One of the most typical phenomena is the statement by the subject that his experience has been ineffable, that it cannot be communicated adequately to others. Some

subjects assert that no words exist to describe internal events such as those they have felt, and that even if there were such words they would be devoid of significance unless the listener himself had gone through the same experiences. Richard Blum (1964) reported one man's reaction:

Really, when I first took LSD, I didn't know how to describe what had happened. It was intense and important, very much so, but there were no words for it. But after talking with others who had taken it, I could see that they were talking about the same thing. They did have words for it—"transcendental" was one—and so I started using those words myself. An interesting thing happened to my wife. After I gave her LSD she said very little about it. For a whole month she hardly said a word about her experience. But then I introduced her to some others who were taking the drug, and it wasn't more than a few days before she started talking a blue streak; you see, she'd learned how to talk about it from them.

This explanation describes how one learns a language that signifies to other users that one understands and has been through a psychedelic experience. According to Blum, the language is shaped by the culture of the speakers—in this case by the particular subgroup with which the LSD user is socially affiliated and under whose auspices he has taken the drug. This language is as much a sign of "togetherness" and "belongingness" as it is a device for communicating the content of an experience. It is not unusual that a number of people in drug subcultures become frustrated when talking with non-users; to the individual who has never undergone psychedelic experience, the user's words are not understood as affirmations that one is a particular kind of person or a fellow member of an important in-group.

Blum has maintained that learning the LSD language and vocalizing the philosophy of the psychedelic subculture are steps in the commitment of an individual to an identifiable group. Language, in this instance, becomes a device to provide structure and to create a community of experience among persons who have had LSD. Furthermore, whatever one expects from the psychedelics on the basis of prior information and personal predispositions strongly influences the choice of words later used to describe the experience itself.

The experience of being taught linguistic terminology by members of the drug subculture is more than instruction in

communication. It is instruction in approved words and approved experiences; it is instruction in a point of view. The terms that are learned can be used to structure the pharmacological response to a drug, giving the experience sense and meaning that it may not otherwise have had. After his first trip, a novice might be told, "Oh yes, from what you say I can tell you really did have a transcendental experience." Such comments are not only instructive, helping the person define and describe his response, but they are also approving and rewarding. As experiments on conditioned behavior have demonstrated, rewarded behavior is generally repeated. In the case of illegal LSD use, the rewards—often linguistic in nature—are frequently great enough to overshadow such potential hazards as psychosis, suicide, and chromosomal damage.

Regarding legal experimental use of the psychedelics, it has often been observed that the language used by the guide will influence what the subject says later to describe his session. This observation is borne out by some of the early research studies. It was initially believed that LSD produced psychotic reactions, and the drug was termed "psychotomimetic" by psychiatrists and psychologists (Rinkel, 1956). LSD subjects were sometimes told by the physician administering the drug, "You probably will go out of your mind for several hours"; many subjects later reported terrifying experiences. One early experimenter took verbatim recordings of an interview with an LSD subject and of an interview with a schizophrenic subject, and outside judges could not distinguish which of the two was suffering from schizophrenia (Hoffer, 1956).

As research workers became more knowledgeable, the psychotomimetic label was discarded by many investigators. Pollard, Uhr, and Stern (1965) noted that psychotic disorders are characterized "by personality disintegration and failure to test and evaluate correctly external reality in various spheres." Following the conclusion of their work with LSD, they stated, "In none of the normal experimental subjects to whom we have given these drugs, nor in our own experience, could these criteria be satisfied."

The problem of scientific scrutiny of verbal reports made during psychedelic sessions persists. One promising tool for

linguistic analysis is the measure devised by Bernard Aaronson (1955) for the examination of verbal behavior in psychotherapy. Using standardized measures of word complexity, Aaronson found that, as psychological stress is alleviated, word complexity increases. Another research tool is that used at the Maimonides Dream Laboratory to divide spoken dream reports into units of meaning (Malamud et al., 1967). As the typical subject in experimental dream studies has little concern for grammatical formalism when he makes his verbal report, this method determines units of meaning to be analyzed with regard to dream content.

Using the Cloze procedure to study grammatical predictability, Cheek and Amarel (1968) administered LSD to ten alcoholics, and analyzed their speech patterns. It was found that grammatical predictability tended to rise as the alcoholics continued to speak, both in the drug and non-drug conditions. A group of ten schizophrenics was also studied in the non-drug condition; their grammatical predictability tended to drop.

In another study (Katz, Waskow, and Olsson, 1968), a group of sixty-nine convicts were administered LSD, amphetamine, and placebos. The subjects receiving LSD were found to be significantly different from the other subjects regarding a number of effects, including language. LSD subjects in general were described as "giggly"; the more-dysphoric subjects spoke little and slowly, the ambivalent subjects spoke a great deal and rapidly, while the euphoric subjects fell in the middle regarding speech behavior.

Charles Dahlberg, Stanley Feldstein, and Joseph Jaffee (1968) are in the process of making a detailed analysis of the verbal reports of psychoneurotic patients during twenty-two therapy sessions. Before each session, the patient ingested between fifty and one hundred micrograms of LSD. The therapy sessions were spaced over a period of eighteen months.

The patients' verbal reports were transferred to IBM punch cards and are being submitted to several techniques of linguistic analysis. One such technique, the Role Construct Sorting Procedure, is a test to measure changes in the way patients conceptualize people who are important in their lives. Moreover, these measurements of change are themselves being

analyzed for indications of increased and expanded associations on the part of the patients.

In addition, the Cloze procedure, an index of redundancy, is being used as a measurement of the predictability of interpersonal language in the patient-therapist interchange. The Type-Token Ratio is a measure of vocabulary diversity and, indirectly, an indicator of the informational structure of speech. Finally, nurses who attended the patients after each session have rated the patients as to speech patterns, periods of silence, periods of withdrawal, mood swings, etc.

Preliminary results indicate that LSD facilitates treatment of early experiences in patients by producing partial regression. In addition, LSD appears to increase the patients' ability to evaluate their problems clearly and to communicate their insights to the psychotherapist with facility.

Written language attempts to convey meaning through printed symbols. Although S. Weir Mitchell (1896), one of the first to write a description of a psychedelic experience, stated that his peyote experience was ". . . hopeless to describe in language," he later managed to describe ". . . stars, delicate floating films of color, then an abrupt rush of countless points of white light [that] swept across the field of view, as if the unseen millions of the Milky Way were to flow in a sparkling river before my eyes." His account was sufficiently vivid for Trouton and Eysenck (1961) to be able to suggest that he substituted primitive thinking in the form of visual images for conceptual thought.

While at the sensory level, during his first LSD experience, a subject attempted to write an account of his subjective reactions, but became fascinated with the very act of writing itself:

Amazing! Amazing! The fluidity of the panorama of the room! It seems like eons of time pass between each letter when I write it. As I write, I see the loops, the dots, etc., spiral off the page in colors. Off to infinity!

At the recollective-analytic level, imagery persists but conceptualization is often possible as well. For example, Thomas Ling and John Buckman (1963) have reported the case of a European writer who overcame "writer's block" through LSD

therapy. Prior to taking LSD, he had been unable to finish a manuscript. After LSD therapy, he went on to become one of the leading authors in Germany. His major work, completed during the time he was in therapy, was translated into twelve languages and had a wide audience in the Western world. The writer concluded:

I am no longer afraid of putting one letter after the other to say what I want. . . . I seem capable of expressing what many people would love to express but for which they cannot find the words. I did not find the words before, because I tried to avoid saying the essential things.

Material that emerges at the recollective-analytic level does not always lead to the well-being of the subject, especially if the drugs are taken in unsupervised sessions and with an absence of preparation. Following an LSD session, a college student wrote the following account of his experience at the recollective-analytic level:

Apparently some sort of love-making was going on in the other room because the guide would not let me enter it. As it turned out, this was the wrong thing to do, because it started me on the road to paranoia, panic, and "the depths." His refusal to let me enter the room aroused my suspicions of an ulterior motive. I picked one which I have a curious fear of: homosexuality. I was unwilling to submit to what became suggestive words, lewd actions, and a depraved smile. I shudder when I recall it. My fear was not of the act but that if I submitted I would become "one of them"—"them" being an indefinite but evil sort of being with a depraved smile—and never able to "return." It reminds me of the movie "The Pod People," where "people" are grown in pods and substituted for real people. You don't know if your best friend is one of these "people" dedicated to your destruction or conversion until it is too late.

Because of the pathological elements in this written description, the student was advised by several people to do no more drug experimentation. However, about a year later, the student accepted a friend's invitation to smoke marijuana. The session began with a number of pleasant bodily feelings and unusual perceptual impressions. Suddenly, the student became obsessed with the notion that his friend desired to have sexual relations with him. The student's friend called the police, and the student was rushed to a hospital, having

entered a serious psychotic episode.² In this tragic instance, the student's written account could have served as a predictor of what would likely happen during future sessions.

An individual attempting to write descriptions of psychedelic experience at the symbolic level has the difficult job of choosing verbal terms that convey some sense of his mythic encounters. This formidable task was well handled by an attorney in the following way (Masters and Houston, 1966, pp. 221-22):

I saw Jesus crucified and Peter martyred. I watched the early Christians die in the arena while others moved hurriedly through the Roman back streets, spreading Christ's doctrine. I stood by when Constantine gaped at the vision of the cross in the sky. I saw Rome fall and the Dark Ages begin, and observed as little crossed twigs were tacked up as the only hope in ten thousand wretched hovels. I watched peasants trample it under their feet in some obscene forest rite, while, across the sea in Byzantium, they glorified it in jeweled mosaics and great domed cathedrals.

The attorney's written description is imaginative, yet fairly concrete, just as the mythical world is concrete. The linguistic consciousness of primitive man is non-abstract; its concreteness is marked by a concrescence of name and thing (as exemplified by the various types of name taboos). Ernst Cassirer (1955) has noted that in some primitive religions the worshiper did not dare to utter the name of his gods; in others, certain words were used for the purpose of hex and voodoo. This concrescence of name and thing is demonstrated by a subject's report of a peyote session:

The guide asked me how I felt, and I responded, "Good." As I uttered the word "Good," I could see it form visually in the air. It was pink and fluffy, like a cloud. The word looked "good" in its appearance and so it had to be "Good." The word and the thing I was trying to express were one, and "Good" was floating around in the air.

² When I interviewed the student, I discovered that no antidote had been given him once he entered the hospital. Instead, he was queried by policemen, who insisted on knowing the names of campus marijuana and LSD users. This type of treatment, in which the well-being of the patient is relegated to a secondary status by law enforcement personnel, has become very common as the general public's fear of psychedelics has increased.

Name and thing are often wedded at the recollective-analytic and the symbolic levels. A subject will say the word "Mother" and feel that the word itself contains aspects of his own mother—or of his memories of her. A theology student will say "Logos" and imagine that God and Christ are both present within the word. Only after the drug's effects begin to wear off can these individuals tear the words apart from the experience.

As with other language processes, psychedelic substances can affect the act of writing by bringing about a regressive-type phenomenon (in which words and experience are united, as they often are with the child and with the primitive tribesman) or else improve the process (by removing "writer's block," facilitating verbal expression, etc.). In some cases both occur, as when a writer engages in concrescence of word and thing at the symbolic or integral level and later presents a vivid written description of that experience.

To assist the encoding of psychedelic experience, an "experimental typewriter" has been invented by Ogden Lindsley and William Getzinger (Leary, 1966a). The typewriter has twenty pens, any of which can be depressed by the subject to describe his ongoing experience. The subject must be trained in the use of the device and must learn the code that assists him to describe his psychedelic sensations and reactions. For example, the first key is depressed whenever bodily sensations are experienced; the third key is depressed when feelings about other people are experienced. Although further refinement of this device is needed, the research possibilities seem extensive. A subject could tap out a second-by-second sequence of his experiences, and communicate them at least in general terms. Experience patterns could be correlated with neurological recordings. A guide could keep a close watch on the subject's reactions should it be felt advisable to modify the experience.

In one first-person report (Roseman, 1966), a subject claimed that he learned how to become a skilled typist by means of psychedelic experience. Instead of emphasizing the more ideational aspects of the writing process, the subject concentrated on sheer motor activity. First, he familiarized himself with the keyboard and learned the proper fingering

techniques. To reinforce the matching of fingers and typewriter keys, he took LSD, began to type, and continued for several hours.

This subject's claims regarding a facilitation in motor function are provocative and need to be explored under controlled conditions. Peter Laurie (1967) has suggested that the act of writing may be feasible under light doses of psychedelic substances but, for most people, impossible under heavy doses. In the case of writing, therefore, one is struck by the same variety of reports as one encounters with other forms of language; certain people under certain conditions claim that their writing functions are enhanced, others assert writing is impaired, and still others report no discernible difference.

Conclusion

The emergence of professional and public interest in psychedelic substances coincides with the shift in human communication from the chirographic-typographic to the electronic stage. Just as electronic devices have begun to "re-tribalize" the world and convey a sense of simultaneity to human experience, so the LSD user often engages in mythic episodes, senses a "unity of all peoples," and has an impression that everything is happening "all at once"—in a non-linear manner.

Psychedelic substances, when they affect language processes, sometimes appear to assist an individual to observe the difference between the word and the object it represents. In this way, the drugs may serve as catalysts in a non-verbal training program, helping the subject translate verbal abstractions in terms of direct experience.

Psychedelic substances can produce the opposite result as well. The subject may revert to primitive thinking, his ability to conceptualize may decrease, and he may effect a union between the word and its object. This is exemplified by the concretization of letters into pictures and images, by the condescence of verbalizations with the items they represent, and by the use of words in magical ways on the part of several LSD subjects.

In other words, any of the human race's communicative

stages—voice-and-ear, chirographic-typographic, electronic—may be observed by the researcher during a round of psychedelic sessions. Therefore, psychedelic drugs offer an unparalleled opportunity for the investigation of human language processes. The few experimental and clinical reports that exist in the fields of listening, reading, speaking, and writing differ so greatly as to inspire curiosity as to the reasons that the same drugs can produce varied effects at different dosage levels, with different individuals, and under different conditions. An extremely important variable seems to be whether or not language, either receptive or expressive, becomes integrated with the ongoing psychedelic experience. If the integration occurs, an improvement in function will often occur. If the connection is not made, language functioning may deteriorate or become blocked altogether.

At the sensory level, words are encoded and decoded in highly unusual ways. At the recollective-analytic level, language often serves as a “connecting system” in memory and interpretation. At the symbolic level, words often become part of a mythic or historical ritual. At the integral level, language rarely is a part of the immediate experience; however, many writers and poets have effectively transformed their religious or mystical episodes into words.

A permanent state of altered consciousness is neither practical nor desirable. However, the individual may return to the world of imprinting, conditioning, acculturation, and verbalization with new insights if his psychedelic session has been properly guided. The research possibilities in the field of language and the psychedelics are immense. The data obtained by imaginative and responsible investigators may well point the way to an enhancement of creative functioning and a better understanding of the human potential.