

# On the Use and Abuse of LSD

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WHILE SCIENTISTS may debate the appropriate use of hallucinogens, history records our unceasing urge to cope with dreary reality or dread with the aid of magic, drugs, drama, festival rites, and (with biological regularity) through dreams. The need to transcend limits also finds a voice in utopian ideologies—be they of the inner world, of this, or the next; the promise of omnipotent mastery is always either implicit or readily inferred. Thus whether it is the proletarian masses, or youth mesmerized by mellow yellow banana, or the princes of the land of genital primacy, or the meek—each is promised the inheritance of what probably will be a rather crowded earth. Given the prevalence of these motives it is not surprising that drugs play a role not only in the behavior of individuals but also in social and ideological processes.

With the appropriate motives and occasion, almost any psychoactive drug can provide a brief “ego disruption”—producing a moment of being out of it.<sup>1</sup> This disruption *in itself* may promote the release of powerful affects and this ego state will be welcomed for its novel value as a remarkable trip from reality. Etched upon it may be the specific pattern of the drug. I believe that the action of drugs such as LSD extend and accent this primary ego state in a salient and sustained way. In any event, scrutiny of the social use of drugs cannot infallibly discriminate the “basic” pattern of effects. We first have to distinguish the range of effects of “ego disruption” and what is commonly called the power of suggestion. With this in mind, we can focus on the ways in which hallucinogens do and do not selectively enhance suggestion and various psychological and ideological phenomena.

Submitted for publication Oct 13, 1967.

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The reported consequences of drugs such as LSD range from isolated awe or benign or even bored surprise to shifts of values. They range from transient to long-term psychoses to a gamut of confusional states and depression to varieties of religious or aesthetic experience and insight, to clique formation and ritual.<sup>2</sup> There are now conflicting reports of therapeutic effectiveness in alcoholism, depression, character disorders, and severe neurosis.<sup>3-12</sup> There is also a mushrooming psychedelic culture. This underlies the tribal motions (or brownian movements) of young and aging dropouts, rebels disavowing society’s “games” if not all (nonmusical) instrumental behavior. The paraphernalia of fringe fashions, music, and art comprise the trappings and trippings commercialized as psychedelic “go-go.” Some serious theologians, some “hippies” as well as our peripatetic prophets now seek the drugs as a promoter of love, of religious or self-enhancement. Some view the drug as transforming western society into a Zen Elysium. Some are sincere and private in these pursuits, some provocative and evangelistic, and there are variant subgroups whose rapidly evolving habits, ideologies, and behavior are as yet unrecorded.

Of course, gentle and ferocious reformers have often held that special visions were not only their inspiration but their explicit guide. The elite threaten misery for those who do not accurately assess—ie, agree with—their claims of value. Truly dispassionate assessment—the exercise of judgment—may deprive one of access to the mysteries revealed in special states; there is only one way to be “in” on the truth—their way—and if one is “in” there may be no way out! The only answer to such dilemmas posed by any cult is exposure to experience, to knowledge, and assessment over time—ie, perspective.

## The "Psychedelic" Dimension in Behavior

The recurrent theme in historical records is that certain drugs are compellingly related to "learning," to self-revelation, and that they are involved in some mystical, often ritual, use.<sup>13</sup> The American Indian often states that "peyote teaches." This major theme does not dominate ordinary accounts of marijuana usage. The *potent* preparations of cannabis—charas and ganja—are an exception and have been used in India to enhance contemplative states as well as for a "high" and are not without paranoid and other psychotomimetic effects.<sup>14,15</sup> Apparently, there is a continuum of effects along the dimension of self-revealing and ritual usages.

To the extent that there *are* classes of agents which reveal normally suppressed components of the mind—exposing these dimensions to our attention—we can say that both use and abuse stem from an amazed response to a drug-induced subjective experience. If this is what Humphrey Osmond meant by the term "psychedelic" (or "mind manifesting"), it is an apt though not novel description. Whatever the outcome, the mode of functioning and experiencing called "psychedelic"—or "psychotomimetic"—reflects an innate capacity (like the dream) of which the *waking* human mind is capable.<sup>16</sup> The fact that a certain class of drugs so sharply *compels* this *level* of function (with all the variability inherent in less organized states) and does so for a chemically determined package of time is what so intrigues the biobehavioral scientist.

From our work over the past nine years,<sup>17-19</sup> we now know that the indole and catechol derivatives which are psychotomimetic in man can induce a response in the brain of animals, altering brain serotonin metabolism and probably increasing the utilization of norepinephrine. Most of these drugs show crosstolerance. In contrast, psychotomimetic agents such as atropine or piperidylglycolates (eg, Ditrane) which produce amnesia and delirium<sup>20-22</sup> primarily affect brain acetylcholine rather than monoamines.<sup>19</sup> This indicates that we are dealing with agents for which some exquisite molecular<sup>23</sup> and biological specificity exists; each of the brain monoamines appears to be law-

fully related to specific, largely polysynaptic neural systems and it is not unlikely that with autoradiography, and fluorescence and electron microscopy,<sup>18,24</sup> our knowledge of the involved neural systems and chemical changes induced by these drugs can be ever more finely specified.

At the behavioral and experiential level this specificity has intrigued many. William James,<sup>25</sup> who had taken mescaline, wrote that there are potential forms of consciousness which with

. . . the requisite stimulus and at a touch . . . are there in all their completeness . . . somewhere (they) have their field of application and adaptation . . . How to regard them is the question . . . *they may determine attitudes though they cannot furnish formulas and open a region though they fail to give a map* (italics mine).

What about the experience of this "region" of the mind is so striking? Two features are obvious, the nature of the experience and the contrast with ordinary experience. It is my impression that one basic dimension of behavior latently operative at *any* level of function and compellingly revealed in LSD states is "portentousness"—the capacity of the mind to see more than it can tell, to experience more than it can explicate, to believe in and be impressed with more than it can rationally justify, to experience boundlessness and "boundaryless" events, from the banal to the profound. If we were to relate this to psychoanalytic theory, we would say that an ego (or cognitive) consequence of the primary process and its hypothesized mobility of energies is this dimension of "portentousness." Affects are equally mobile; fragmentations and fusions—plasticity—are, as Freud described it for dreams, characteristic.

To this disjointed world of clear perceptions one can react with awe rather than tempered judgment, or even with irrational and boundless affect—ecstasy or terror. The *sense* of truth is experienced as compellingly vivid but not the inclination to test the truth of the senses. Unlike the sleeping dreamer, the waking dreamer is confronted with the coexistence of two compelling and contradictory orders of reality—with the interface of belief and the orderly rules of evidence.

James saw this as a region of the mind

which knows *both* mysticism and madness; “. . . there seraph and snake abide side by side.” But experiences of this realm of the mind cannot be totally disconnected from normal life; how they are connected is the crucial issue. As James remarked, what comes from this inner world must, “. . . eventually run the gauntlet of confrontation with reality just as what comes from the outer world of our senses.” The “trip” back to reality after “tuning in” to this region may be discordant or harmonious; one’s sense of both the inner and outer world may be revised in the service of the ego or altered to suit the requirements of irrational needs. There are, then, modal and characteristic forms of mental operations which can underlie behavioral states and experiences of widely different consequence, intent, and meaning; and these modal operations are common both to madness and mysticism which must be differentiated on other grounds.<sup>26</sup> To summarize, I believe that there are few drugs which can so unhinge us from the constancies which regulate daily life, or so clearly present us with unevaluated data from the “inside world” and from the many normally useless perceptions potentially available to us. It clearly has been tempting to snatch some good from this. It also can do little harm, given such an ample smorgasbord of claims, to seek perspective by concentrating on what—if anything—is common to all of these varied effects of LSD.

What must be described is a multipotential state which, in its most general sense, can underwrite a variety of outcomes: religious feeling and conversions, states of hyperperception leading to inspirational insights, to psychosis, to exalted states, or perhaps to behavior or value change. The more we can grasp some of the intrinsic features of this state, the more we will be able to predict and understand why such drugs can be properly called psychotomimetic, psychedelic, or “cultogenic” agents. It will also be clear that some of the modes of experience—the *styles*—which characterize the drug experience can be linked to the outcome or to the style of life commonly centered around drug taking: whether this frequently persistent “hangover” of drug effects represents new learning, or reinforcement of the ongoing trend of goals and adaptations, or more com-

plex mechanisms is not now known. Beyond impressions which are hardly sanguine about long-term use, evaluated data are still lacking.

### Pharmacological Features

The sequence of effects following the usual doses has been described elsewhere.<sup>27</sup> During the first 4½ hours there is generally a clear-cut self-recognition of effects—an internal “TV show” (marked by shifts of bodily sensations, affect, and perception) which is followed by another four- or five-hour period in which the subjective sense of change is less marked but during which heightened self-centeredness, ideas of reference, and a certain “apartness” are observed. At 12 to 24 hours after drug there may or may not be some letdown and slight fatigue. There is no craving to relieve this and no true physiological withdrawal.

Contrary to previous myth, the acute stage correlates with the biological half-life of the drug in plasma in rat<sup>28</sup> or man<sup>29</sup>; and the duration of what can be identified clearly as drug related effects is dose dependent, lasting generally 8 to 12 hours. There is a dose-contingent tolerance in both rat and man requiring three or four daily doses for maximum effect and about four days for a loss of tolerance<sup>30</sup>; with high dosage there is an unexplained cyclicity of tolerance—a sudden loss after eight days and then a gradual build-up with continued dosage.<sup>31</sup> With doses of 200 to 1,000γ there is, with increasing dosage, an increasing loss of autonomy and control of critical and discriminative functions. Usually, one “trip” produces “psychological satiation”<sup>13</sup> and is sufficient for most people forever and for others, at least for a few days, months, or years.

### The Drug Experience

It is the intense experience without clouded consciousness—the heightened “spectator ego” witnessing the excitement, which is characteristic for these drugs in usual dosages. Thus there is a split of the self—a portion of which is a relatively passive monitor rather than an active, focusing, and initiating force, and a portion of which “receives” vivid experiences. Some people seem to re-

peat this long after the drug state; standing apart from life and its "games" or relying on the group to direct events, they turn away from the prosaic world—or else are turned away by society. The striking self-centeredness—the experience of the self seeing the self—can be elaborated in a variety of ways, from detachment to symptomatic narcissism. The dominant experience of seeing can be expressed as convictions of revelation—ie, psychological, mystical, aesthetic, or religious "insights."

During the drug state, awareness becomes intensely vivid while self-control over input is diminished, fragile, and variably impaired. Thus there is always the lurking threat of loss of inner control—loss of control of integral stability. This is variably experienced and symbolized. At its height, it has been called "dying of the ego" and is often reported in bad trips or in phases of mystical experiences with the drug. For some, such experience is dread transcended; for others, it is unwelcome or denied anxiety and dyscontrol. Many anxious concerns and problems after the drug state center around issues of control, autonomy, self-directedness, and decision making.

In the drug state, customary boundaries become fluid and the familiar becomes novel and portentous. Any event or category of events which comes to one's attention—sensory, sexual, or cognitive—takes on a trajectory of its own. Qualities become intense and gain a life of their own; redness is more interesting than the object which is red, meaningfulness more important than what is specifically meant. Connotations balloon into cosmic allusiveness. This can be experienced religiously, aesthetically, sensually, or in a variety of clear or confused frames of reference.

After the drug state, we may find pseudo-profundity<sup>2,32</sup> or omniscience as well as more tolerance for the novel, the unusual, or for ambiguity. We also can find an associated inability to decide, to discriminate, to make commitments. This occurred as a Rorschach pattern in Indian peyote users.<sup>33</sup> Such a tendency to avoid distinctions could lead to alienation and retreatism, even if these were not preexisting traits (as they often are). For many, the drug experience may represent a beginning—an attempt to

feel intensely—which without luck or expertise, cannot easily come to a useful conclusion (just as neurotic acts may be viewed as unguided attempts at self-cure).

Certainly when hidden meanings perpetually contaminate the response to the explicit conventions of everyday life, "focus" and goal-directed efficiency are impaired. Judgment is not enhanced during the drug state and isolation or apartness bring their own problems: accordingly persons who continually overvalue the modes experience of the drug state could develop and reinforce poor practical habits. Pseudoprofundity, philosophical naivete, impractical detachment, and inadequate foresight and judgment or impulsiveness in dedicated users were already evident to an observer of the Harvard scene of 1963.<sup>32</sup> The consequences of long-term and frequent use of the drug—involving possibly 5% to 15% of those experimenting with LSD—would probably have to be evaluated in this context.

### Immediacy, Novelty, and Creativity With LSD

In the drug stage, the experience of compelling immediacy diminishes the normal importance of past and future. One's organized anticipations of time dissolve and the anticipatory factor, so important in the psychophysiology of pain, is similarly affected. (This—coupled with effects of suggestion—may be why the drug experience could be reported as "replacing" narcotics in dying cancer patients.) Dehabituating (ie, a response to the familiar as if it were novel) was noted in early studies of the drug in cats.<sup>34-36</sup>

The overvaluation of "nowness" is not unrelated to the fickle pursuit of the novel apparent in certain youth subcultures. The ability to see old and familiar events in a new light is also a facet in the poorly understood processes related to creativity. But the impairment of goal-directed efficiency and sustained focused attention carries with it the impairment of integrative and synthetic functions. Thus the mere *mergings* of sensory objects (the synesthesias, the plastic rearrangements or the clear focusing upon fine details or usually disregarded perceptual elements) or the elisions of thoughts and

concepts hardly are the same as an organized building and arrangement in which "boundaries" and distinctions are essential. Sharpened or "heightened" perception and consciousness is not equivalent to adaptive perception, nor is abnormal brilliance necessarily to be equated with beauty. Indeed, the primitivization of perception seen in man<sup>37</sup> and animal<sup>38</sup> suggests vividness more than powerful discrimination of the complex. Creativity requires some facility not only for seeing but for implementing new meanings; but, as we shall stress, it is the need for synthesis—not the ability to synthesize with due account for real limits—which tends to be reinforced in the drug state.

### "Cultogenic" Effects of LSD

An important feature of the state is an enhanced dependence upon the environment for structure and support as well as enhanced vulnerability to the—now novel—surrounding milieu. With the loss of boundaries, persons or a group are used for such elemental functions as control—for helping one to know what is inside and what is outside, for comfort and for binding and balancing the fragmenting world.

With the fusion of self and surroundings, some of the strain caused by the *exertion* of personal strivings and their conflict with what is projected as harsh authority, can (for the moment) be transcended or dissolved. At the same time there is a leaning on others for structure and control. Hence, when the drugs are taken in a group setting, the breach with reality can—and must—be filled by the directive mystique and support of the group. This is, in part, why I have termed these drugs "cultogenic."

Many successful self-help groups are peer groups or form around a common flaw. If they are uncritical of weakness, less masking of inadequacy can ensue. With such arrangements, the distance between authority and the miscreant is diminished and so, too, is the inner tension. The cost is a surrender of a certain order of autonomy to the group, a certain passivity, and dependence upon the concrete presence of a group to share the burdens of initiative. The surrender of a conflictful autonomy (reflecting a prior instability, isolation, or diffusion) may be

preferable to the compensatory delusional autonomy seen in proselytizers who aggressively threaten the establishment with love and drugs. Of course, a compulsive tendency to externalize the nonflict with authority can be reinforced by peer-grouping. Nor are all the tribal affiliations we call groups endowed with the competence to guide; many are loose alliances based on the denied mutual despair of their members.

### Object Relations and Values

Actual persons in the environment have positive or negative value in terms of quite elemental functions, eg, as threats or as anchors in maintaining a primary self-control (quite as in the so-called psychotic transference) and intensities of affect can mercurially escalate and diminish in the absence of normal boundaries. Persons are self-centeredly seen and used—either to be clung to, or to be contemplated in terms of what essentially is a self-centered sensory, aesthetic, or ideologic frame of reference; they may become vivid objects of highly personal transferences. At best there may be a narcissistic shifting of one's relationship to others and to one's own ambitions which, as Kohut has noted,<sup>39</sup> can lead to outcomes which are socially valued—wisdom, humor, perspective. But such internal syntheses never guarantee socially pleasant behavior, and pathological outcomes are also probable.

### Model Psychosis in the Drug Experience

The elements of a model psychosis are present. This does not mean identity; rather it is an approach to certain processes which are variably present in both the drug state and psychoses. The conditions for either state have similarities and obvious differences (just as do dreams and psychosis).<sup>40</sup>

In the first hour after LSD most people refer their altered perceptions and relationships to the body and its parts; this period of changed bodily sensations and perceptions could be called hypochondriacal (with all this connotes as a prodromic symptom) or simply altered body image, depending on the context. The point is that there is a uniform change in the experience of the relationship of the body, the self, and their normal environmental coordinates.

The basis for hallucinations can be analyzed.<sup>41</sup> For example, what is impinging on an ongoing perception is a vivid memory of what has *just* been perceived; these coexisting images can compete for attention and thus give rise to illusions. (In our laboratories we have observed monkeys under LSD who may respond to serial stimuli as they had been trained to respond to overlapping stimuli.) This is marked usually two to three hours following 200 $\mu$ g or less of the drug and following the period of altered perceptions referred to the body and its boundaries. With the increasing loss of distance, such illusions can be imaginatively or regressively elaborated into hallucinations. Similarly, memories can emerge as clear images competing for the status of current reality. This failure to suppress the prior perception or memory or thought is reminiscent of what Bleuler called "double registration" in schizophrenia or what, in Rorschach parlance, is called contamination. Similarly the failure of identities and categories to be maintained underlies most of the descriptions of paralogic in schizophrenia.

The capacity selectively and relevantly to direct one's focus is impaired; allocation of the source of a feeling, a sound, a sight, or a thought becomes difficult since the distinction of inside and outside tends to diminish. Accordingly there are frequent mislocations or misconceptions—projections—of motives and sensations. This tendency is reinforced when one must exert energy to account for even slight changes in the environment; slight details not only capture attention but also can gain the patina of portentousness and are linked to the ever present threats of dissolution. The eventual outcome of this hypervigilance, inefficient scanning,<sup>42,43</sup> and mislocation is called paranoid behavior.

There is also a remarkably heightened sensitivity to gestures, inflections, and non-verbal sensory-motor cues which normally are in the background; however, the ability accurately to judge these cues and appropriately lodge them in context—just as in schizophrenic sensitivity—is easily impaired. The altered relationship of figure and ground also means that metacommunications fail; the context no longer predicts the relationship of parts to the whole.

Similarly the component affects can be

enhanced under the drug state but are difficult to focus upon. Thus several contrary feelings coexist; or they fluctuate (just as sensations do); this is reminiscent of ambivalence. Subjects later refer to the total state as a pleasant-unpleasant experience. Those seeking mystical experience speak of heaven and hell. Euphoria mixed with tension may be seen.

Laughing or crying or both in the first three hours are common. With care, one observes that—following the initial perceptual changes referred to the body—there is a primary need for elemental tension-discharge—a welling up which requires laughing or crying for relief. Subjects *have* to laugh or cry and they *then* seem to find the appropriate setting to rationalize this.

However these experiences may be represented and symbolized, they are evolved from a groundwork entailing a coexistence, heightening, and fragmenting of component urges and feelings. Thus, changes in ego organization and capacity seem to occur first: this is usually manifest in the perception of bodily changes. A tension or need for discharge then becomes apparent; perception of affective changes and changes in the self and relationships with objects in the milieu supervene and dominate the experience. These changes in the first three or four hours underlie the varied experiences of "insight." Expectations and preconscious fantasies certainly stamp the content and even influence the capacity to exert control during the drug state, but with the loss of structure a "program" of vulnerabilities and needs seems to be "released"<sup>44</sup> or compelled by the drug.

The enhanced value and intense attention placed on the self, the narcissism, ego splits and regression; the loss of boundaries; the "double registrations"; the ambivalence; the heightened tension; the diminished control and problems of focus<sup>45</sup>; the unstable (or inappropriate) affect; all can represent the primary symptoms of a psychosis. Given this state of affairs one can see a variety of "psychotomimetic" or "psychedelic" phenomena elaborated and expressed—all of which require such basic shifts in ego organization. Whether or not the "observing ego" keeps touch with reality may be crucial to outcome, but is irrelevant to the classification of a psy-

chotomimetic state. Catatonic schizophrenics often maintain a silent observing ego monitoring reality during their psychosis.<sup>46</sup>

The appearance of peak experiences (or acute psychedelic experiences) in clinical psychosis has long been documented<sup>47</sup>; early phases of acute psychoses often cannot be differentiated from accounts of drug experience.<sup>16</sup> In the hours following the acute flux, as adaptations to the first phase begin, we can note the subject's attempts to structure while still impaired by the drug. Where energy for scanning and testing the reality of unwanted input is required, delusional simplifications, ideas of reference or passionate beliefs occur and provide an economical explanatory anchorage.

We have with these drugs at least a tool with which to study the genesis and sequence of a number of familiar phenomena in psychiatry. Whether it can lead us to a better sorting and description of the varied elements which are present in the range of clinical disorders is yet unanswered; for example it is obvious that differences in outcome of LSD states depend upon specific prior strengths as well as varying circumstances. It is also obvious that a time-bound state such as a drug state cannot demonstrate symptomatic phenomena which develop over time and are embedded in confusing life circumstances.<sup>48</sup> Indeed, the role of these factors in symptomatology could be more readily distinguished by appropriate comparative study of clinical and drug-induced alterations of consciousness. Comparative studies of drug-induced states could also be useful in determining factors and sequences related to outcomes of such a multipotential and fluid state. Finally, it bears upon our thinking about any psychosis to recognize that—whatever the role of motivation—primary or secondary shifts in such elemental ego functions as attention and discrimination—the adaptive control of sensory input and perception<sup>42,43</sup>—can underlie a range of “psychotic” symptoms.

### Adaptations During the Drug State

Some persons endure all this without evident harm. The spectator ego can simply be interested in the reversal of figure and ground, the visual tricks, or—with higher

doses—the spectator is entranced or totally absorbed. But with increasing dosage the experiencing ego can be overwhelmed. At any level, defensiveness can appear; the spectator shuts his eyes and a blind struggle for control may dominate. Basic attitudinal shifts, redirection of attention, projection, denial, displacement, affective explosions, panic, confusion, withdrawal, or magical and delusional syntheses may be seen as persons attempt to cope. Rarely there is an acute loss of judgment or impulsive and primitive thinking manifest in attempts to fly or defy gravity which results in a concrete and fatal confrontation with the real world. One protection is *not* to fight the experiences during the drug state. An upsurge of the traditional defensive operations requires extra vigilance and may lead to temporary panic even in relatively stable people.

It is striking that when self-examination or confrontation with personal problems is the motive for illicit drug-taking, effects are not infrequently bad. Both licit and illicit drug users note that unstable surroundings or confused motives lead to “bad trips.” When problems are aptly externalized or shared there is less panic and subsequent upset. Those who are unable to tolerate the flux by shifting attention from it or enduring it (or “guiding” it by delusional, mystical, or aesthetic revisions) may retreat into catatonic-like postures. Thus a certain yielding and surrender of ambition and personal autonomy helps some individuals to have a good experience; but this requires if not group support, a certain personal strength, or at least a facility. *It also requires stable groups.*

Those who are encouraged or equipped to *not* attend to the fragmented disparate elements, let them flow into the sway of a mystique, steered by latent guiding interests or memories. Thus all that occurs is given a tone—or a very diffuse direction. With higher dosages and the increasing loss of detailed focusing, the importance of guiding “sets” (music, mystique, affective expectation such as the doctrine of boundless love) is enhanced. Indeed, under LSD it is the positive or negative attitudes and postures toward the ego's varied experiences which are most vulnerable to suggestion. The “maps”—the formulas and specific ideologies supplied by

guides—are actively sought because of the vulnerability of the ego and the *relative* loss of synthetic and higher cognitive functions (such as goal directedness). Accordingly panic states may be “guided” by redirection of attitudes, or attention and by provision of structure.

### Summary of the Drug State

Thus we may say that in the presence of a heightened sense of awareness, there is a diminished role of the array of functions related to cognitive control and discrimination of complexities. The ego may be said to be less autonomous—less reliable—in the deployment of focused and sustained attention. It is vulnerable to being guided by a widened and more variable range of both internal and external factors. In order to anchor the drug-induced period of flux, direction of attention and basic orienting attitudes can be supplied either by the now impaired ego (with its defenses and prior expectations) or by the setting. Such expectations may be explicit and implicit, conscious *and* unconscious; accordingly, prediction and control over outcome especially in self-experimentation are inherently unreliable. Similarly, the utility, fittedness, and reliability of the setting will, in fact, vary widely.

The extent to which the experience of a specific “trip” is related to outcome requires finer study. So, too, does the fact that one good trip does not predict a second. Accurate studies in this area are important to our understanding of outcome. Nevertheless, the primary changes described are the background state from which a number of divergent outcomes and adaptations ensue—adaptations *both* during and after the drug experience. No doubt the rearrangements of reality which occur during this state produce a memorable experience, but one is reminded of Sidney Cohen’s remark that most people get what they “deserve”<sup>40</sup> or what they are equipped at the time to experience as modified by set, equipment, and setting.

### Restoration of Constancies After the Drug

Two realities have been exposed in startling contrast—private and public reality, both of which are a part of experienced real-

ity. Anyone who has experienced this intense episode must come to deal with it; some judgment about the significance and utility of these realms of the mind must be made. Our dreams are an episode in a sequence of states which we usually can somehow integrate into the normal fabric of living; similarly something must now be done to represent and cope with the total drug experience—nightmare, illusion, or ecstasy.

Some borrow stability from ready-made explanations or isolate the experience. Still others will decide that the experience of cosmic comprehension is equivalent to self-mastery. Still others, lacking any other means of mastery, will be compelled repeatedly and unexpectedly, to confront what was experienced. We see this in students who come in for help weeks after a trip—experiencing anxieties or brief unwanted trips in the absence of drug.<sup>50</sup>

The breakdown of those constancies and habits which normally smooth over the disparate details of our perceptions and actions can persist in frightful but also benign ways. One scientist experienced his peripheral vision to be enhanced during the drug state; it is not uncommon that there is an equivalence of value for what is at the periphery and what is normally perceived at the center of the visual field. He commuted daily, reading during the trip. For months after the drug, he was bothered by the telephone poles which flashed by his train window. He could no longer suppress what normally is background rather than compelling figure. Similarly, the unconscious “background” to thoughts, gestures, and feelings can emerge.

There are numerous anticipatory sets or constancies which operate to keep the body oriented in space and ready to meet the environment as we expect to experience it; the mind provides constancy wherever the sense organs deal with variability. We anticipate or correct for the images on our retina to keep the world stable and ordered; the hand stretched 8 inches before one, may appear small, though on the retina or camera it is large. Coming off a boat one may still waddle, maladaptively anticipating the roll of the ship. Such habits or sets can smooth out our perceptions and actions; but they can persist when they are not useful and lead to inappropriate and confused responses. LSD



appears to affect these stabilizing perceptual anticipations. It rearranges and unbalances our ideas of order, whether the self and its defenses or perceptions are a referent.

### The Need for Synthesis and Outcome

The intensity of the drug experience manifest in the change of constancies can lead to a number of repetitive behaviors. The search for synthesis may take the form of attempts to reexperience the intensity of elements within the drug experience in order to master it, just as with the traumatic neurosis with its breaching of the "stimulus barrier." It is an old theme in psychopathology that in a state of altered consciousness in which control over awareness is diminished, there is no way to bind the intensities experienced and symptoms may ensue. Breuer (and more reluctantly, Freud) referred to this as the hypnoid state; explanations of the consequences of early pregenital experience to repetitive neurotic symptoms in later development have been placed in this context.<sup>51</sup>

While "bad trips" occurring without the drug may be explained in the model of the traumatic neurosis or hypnoid state, it is astonishing to see an entire sequence of heightened sensations as well as altered perceptions occurring with apparent suddenness weeks after the drug. This obviously evokes comparison with psychomotor epilepsy; but this connotation is as yet without foundation in facts. The psychodynamics preceding these lapses from reality also require close scrutiny; yet these reports appear to present us with evidence that the "barrier" against dereistic thinking and altered states (or the "switch" permitting a shift of mental states) is a factor which in itself merits intensive investigation. There are schizophrenic patients who appear eventually to have learned or discovered that there was some control which they could exert against "slipping" into such states. Whatever the explanation for either the loss or the mastery of such controls may be, it is evident that the experience of the LSD state with its intense clarity in the presence of diminished control can have a range of consequences which cannot always be anticipated simply by monitoring the apparent intensity of the ongoing drug state.

Repetitive symptoms—such as acting out

—may occur. In part, these may be viewed as unsuccessful attempts to restore or find constancies and boundaries. Such behavior, which invites control and guidance, frequently appears as a provocative accusation against authority and—by provocation—preserves a tie with it. Others aggressively and endlessly talk about their experiences as if they were trying to put them together.

For some, reflection about the sharp contrast of drugged and real life may evoke mild or severe rumination and depression—related to an urge to recapture the lost illusionary and brilliant drug world. The extent to which primitive and regressive fusion fantasies will dominate these reactions varies. Conflict and confusion about "what is reality" or the experience of normally repressed thoughts and urges by the unprepared ego can lead to mild or severe symptomatic states, perplexity, and disorganization.

In any event, variably determined needs or capacities to cope with the split or breach of normal experience can be expected. This may be a simple "sealing over," or even an enlightened and useful thought formation we call insight. Some react with a denial of inadequacy and anxiety about loss of control; borrowing the enhanced omnipotence of the drug state, they show a delusional autonomy. This may lead to various outcomes: that of the benevolent and foolish prophet, or the defensive, alienated therapist, angry at those who prevent his curing the rest of the world. Any threat to the values of the illusory experience of union and omnipotence—such as undrugged reality—could evoke defensive denial and strident proselytizing.

It is interesting that classifications of pathological outcomes of conversion<sup>52</sup> (including irresponsibility and omniscience) startlingly resemble patterns we see with LSD. Indeed, we must seriously wonder why those who find salvation are so implacably generous and so ready to advertise! Implied are unsolved problems with authority figures. Salvation often involves renunciation of previous ties; those who are saved must repetitively convince others in order to diminish their own doubt, isolation, and guilt. At best, they may do this not only to share but in order to reachieve union with those from whom they have been separated

by their unique vision and experience, and to synthesize these breaches with important others.

### The Role of Groups in Outcome

Some kind of continuity with the gap in reality is sought. The bridge may be a book as it was with Huxley, a silent synthesis, or change of values and tastes, or the understanding of a group or person. In the Native American Church, the Indian utilizes religious explanation and adherence, specific ceremonies, and the group with its ideology to integrate the experience which serves a purpose in the total fabric of his life.<sup>2</sup>

There are mixed consequences with the reliance on groups. In some chronic users one sees a bland impulsiveness—an indifference to the habitual and customary which may border on a supercilious posture of superiority. The elect of many cults either *assume* this attitude or the outsider *feels* this to be the attitude of those who know something he does not. This benign or irritating posture has also been remarked upon in the American Indian peyote users who are often a subculture not infrequently at odds with established groups. Nevertheless, the observed reliance of drug users on cults can permit at least a measure of authentic self-involvement at a level which is realistically available to the persons involved. Where these "cults" are but loosely juxtaposed cliques connected by common rationalizations, there is still some comfort and protection from a ruminative self-concern which is enhanced by isolation.

Mystical or religious representations also are remarkably apt for synthesizing the experience. Religion can relate man to his limits while taking account of his boundlessness which occurs in all aspects of this realm of the mind. It may be that religious symbolism aptly represents the transformations characteristic of this latent part of the mind. Against fragmentation and directionlessness, something coherent lends continuity to experience. Against dread, transcendent love can prevail; loving like redness can apparently be enhanced and is remembered. The "lovingness" and "strongness" of a parent can be parted from the particular persons and transcendently represented in various forms of power ascribed to deities.

There are, then, a number of features of this multipotential state related to its intensity, its novelty, its boundlessness which account for some of the expectable occurrences within it and some of the expectable—and observed—dangers and variable outcomes.

### LSD in Psychiatry

There are a number of psychotherapists who have attempted to use the loosening of associations *and* the intense experiencing produced by the drug in order to influence behavior change in individual as well as group therapy (and the drug obviously is useful for the study of group processes).<sup>53,54</sup> There are a few ongoing controlled projects and a long history of experience with the use<sup>3,55</sup>—and abuse<sup>56</sup>—of LSD in therapy. In the late 1950's some physicians thought they had discovered a new reality of the mind and were not only struck by the drug-induced phenomena, but apparently addled by them. Perhaps they were simply jealous of the subject when they insisted upon taking the drug concurrently with him.

Today, two major serious modes of treatment prevail. That employed by many European workers (called "psycholytic" by Leuner<sup>44</sup>) represents a method by which certain defenses are breached. With a strong drug-enhanced tie to the therapist, feelings, memories, and transferences are allowed to emerge vividly and unforgettably before the eye of the consciousness and their strength discharged. The events are later worked over with care. Dosages are regulated in part by the capacity of the patient to steer a course between being utterly lost or overly constrained by habitual defenses. A kind of active participation in the presence of a general loosening is sought. As issues in therapy arise, clusters of intense affects directed towards early experiences and objects are encouraged; thus, fantasies involving rebirth, early transference strivings, and trauma can emerge with sensory intensity. The therapist lends support and later interprets.

Certainly, people are initially less guarded under the drug and can experience a range of "insights" they might normally disown. Yet they also can react quite defensively under the drug when what is seen is, for personal reasons, overly traumatic. To an

extent they can ward off self-recognitions with affective outbursts and they can clearly distort them by basic attitudinal shifts, displacements, redirection of attention and projections, denial, confusion, withdrawal, or magical and delusional "syntheses."

For quite vivid self-encounters there is usually no postdrug amnesia. The integration which follows is a collaborative venture requiring the active participation and the output of the patient. During treatments, a sequence of defensive memories, transferences, and distortions commonly arises and requires further drug sessions and work. Illicit drug users also encounter "hang-ups" but have little guidance to work them through sequentially. The therapists find this absorbing and exhausting; they generally work with inpatients and severely ill or characterologically impaired patients.

In the so-called psychedelic therapies as they are now being tested, there is an awareness of an immense amount of preparation, of salesmanship with an evangelical tone in which the patient is confronted with hope and positive displays of it before he has his one great experience with a very high dose of drug. The drug experience is structured by music and by confident good feelings. With the support of the enthusiastic therapist, the patient is encouraged to see his life in a new light, to think of his future accordingly. There now tends to be a rather long period of follow-up and support before the patient is discharged. An earlier mode of intervention attempted to avoid the tangled problems of relationship between therapist and patient<sup>10</sup> with but a single high-dose drug session as the chief therapeutic contact; the current approach is more explicitly ritualized (in the model of nativistic movements); the person and attitude of therapist tends not to be analyzed but incorporated. It is speculated that the egocentric problems of the alcoholic may be specifically tailored for this "ego-dissolving, ego-building" technique. Other approaches, eg, employing hypnosis,<sup>57</sup> lie somewhere between these two. It is interesting that peyote cultures also report cures of alcoholics but the effects may not persist without sustained group support and leadership.<sup>2</sup> The effectiveness and selectivity of current therapies is far from settled and research is still ongoing.<sup>3</sup> Obviously

careful follow-up is essential since the immediate glow which occurs with drug-induced personality changes in such contexts can be deceptive. The fact that under LSD the therapist can often readily suggest positive or negative attitudes toward life experiences and promote a state in which struggle *may* be diminished should arouse our fundamental curiosity not only about LSD therapy and its effectiveness, but about the mechanisms, utility, resistances, and pitfalls in behavior change achieved through persuasion.<sup>58,59</sup>

### The Scope and Dangers of Illicit Use

We should recall that the increasing problem of drug abuse in most countries is alcohol, followed by the barbiturates, amphetamines, opiates, and mild tranquilizers. In this context the consequences to national health of hallucinogens are not as yet truly startling—either in terms of the utility of LSD or its harm. In the long run, debates about whether or not to use LSD are hardly as socially consequential as the use of "the Pill." The agent most frequently used by youth for illicit purposes and with lethal effect is the automobile; and the most faithful monitor of the scope of such social problems is the prevailing high insurance rates for young men. The actuarial superego of our society has not yet instituted insurance rate changes for medical, psychiatric, or mortician's coverage in response to these chemicals. This is an interesting generation but they have not as yet gone completely to pot!

Not all users are youth nor are all youthful users initially unconventional and unproductive. A few current illicit self-help groups reportedly employ the drug and religion to achieve a conventional outcome; eg, a group of exconvicts and a group of homosexuals. Several religious and lay groups have set up agencies to be phoned when panics are encountered. We seem to be living in an era when many practices (half-way houses, group therapies, cathartic therapy, confrontation therapy) built into the fabric of psychiatric work are imitated by ever proliferating self-help groups which frequently tap our society's long tradition of distrust of medical science. Unfortunately, nonscientific

tific searches for cures are too easily dismissed as fanaticism, eccentricity, or ignorant superstition. Yet these social responses in part reflect upon the ability of the health professions to deliver relevant services, to treat irrational anxieties, or to be competently aware of and responsive to the issues and consequences of different patterns of drug abuse.

Reliable estimates of the incidence of psychedelic drug "use" (however defined) are always vulnerable to criticism. They range from 1% to 15% on certain campuses. Figures higher than 5% probably do not distinguish single trials from habitual use nor LSD from other drugs of abuse; eg, proselytizers frequently tell us about the "inevitable" growing use of "marijuana and LSD." Only a small fraction of persons who have taken the truly potent hallucinogenic drugs could be said to constitute a reliable base for study of long-term users. Groups of persons who drift in and out of the category of users are not easy to identify and are hardly reliable reporters. The problem is that some are always first discovering the drug (available now for 20 years) and acclaiming it while the silent others are experiencing disillusion after a year or two of absorption. Still others actively seek or passively accept one or two self-experiments. We clearly require a study of the fad element in usage; cycles of interest may well be shown to follow certain press releases and to vary sharply with opportunity and the ethos of different settings—eg, hippie centers or campuses or enclaves of middle-aged imitators who mourn their lost youth. Clearly the motives for experimenting, maintaining—or self-regulating—the intake of any drug differ as do the consequences of these varied patterns of use.

Complications for research also arise from sensational publicity. The select as well as the popular press provide a structure for the curious, restless, and lost as they compete to announce or denounce drug usage. The psychedelic hucksters—for a bandwagon effect—confidently announce that growing hordes of youngsters are independently dedicated chronic users. To the mature, their message is that this is a revolution in which adults are helpless; to the young it is a subtle invitation to revolt under the sanction of inevitability. The establishment then reacts with

irritation and fright. As the advertising escalates and the empirical problem indeed grows, the young and their frequently confused and permissive parents must enter the debate and assess the claims of value. Physicians hysterically crying alarm join the melee, lumping all bad reactions into one dire outcome: permanent madness. They can now also cite somatic dangers.

Reports of chromosomal changes in preparations of lymphocytes raised in tissue culture are not identical with "genetic damage" or clinical disease. Apart from unwarranted biological inferences, the reliability of such findings is not established; nor do we as yet know the relationship to dose, to common stimulants, or to drugs related by structure or behavioral effect. Similarly, a finding of LSD-induced stillbirth or stunted growth in rats is not identical to fetal anomalies or germ cell damage; effects in mice may differ; rodents may differ from man; similar reports of effects of other drugs (including reserpine) should be evaluated prior to sanctioning alarming reports about LSD. Nor does the persistence of hippocampal discharges for several weeks following LSD (in cats trained to avoid shock) indicate long-term brain changes nor brain "damage" in man; reserpine, in fact, produces more dramatic persisting effects in the hippocampus<sup>60</sup> and without the intervention of shock. Neither the history of folk usage of psychedelics nor the past 20 years of medical and lay use of LSD have—as yet—produced clear and reliable evidence of somatically dangerous consequences of the drug in man.

While such important research continues, caution about publicity is warranted on both scientific and humane grounds lest we further panic the susceptible. A single past indiscretion with LSD now leads to serious brooding over the shape of what the young parents fear will be a psychedelic monster. No doubt the social problems presented by LSD could easily be diminished if a clear-cut somatic danger is established; we might, however, have yet to cope with this phenomenon without the aid of such facile warnings!

### Psychiatric Complications of LSD

The facts are that dangerous and tragic psychological consequences *are* now unequi-

vocally established,<sup>61-67</sup> and it is just this fact which users deny (as if it were concocted to attack their autonomy and self-esteem). From our own campus experiences it appears that users who end up in hospitals with prolonged and serious psychoses are initially a quite unstable group. They are, in any event, a small group. Suicides and violence are also uncommon. More frequently one sees a transient panic occurring during the drug state from which recovery (without the administration of often complicating phenothiazine medications) occurs within 24 hours. If other than supportive and reassuring treatment is required, adequate barbiturate hypnosis or a sedative tranquilizer such as chlordiazepoxide is a simple regimen. A few visits for follow-up can be instituted when required. Others do not require hospitalization but often seek treatment because they are concerned about having taken the drug. They are upset or depressed about some of their thoughts and experiences during the drug state, or about their basic life dilemma—which in many instances is obviously serious. And a few others, as noted, may have serious “nondrug” induced panics some weeks after the drug state very much as a bad dream recurs. Occasionally a complicated history of multiple drug intake by a rootless youngster leads to a picture of toxic psychosis.

We must make a distinction between an unpleasant trip—even one which might lead to emergency room referrals—and various psychiatric complications of drug use which may or may not be contingent on a bad episode. Such unpleasant episodes have “turned off” those who try a casual experiment—a socially valuable response! When patients are brought to physicians by drugged or unstable friends, or in disorganized circumstances, physicians should be aware not only of the role of momentary panic (and the fact that any escalating panic can look like a toxic state) but of the possibility of complicated drug-taking patterns, of prior instability if not mental disorder. Similarly, we should note that classical instances of identity diffusion, of borderline phenomena and adolescent turmoil may—in contemporary life—be associated with LSD; this is hardly a basis for citing the drug as totally causal.

We now see little scare literature presenting an unevaluated snapshot of steroid psychoses, because we can now predict with more confidence what the results will be and evaluate the risk. Similarly we should—in time—become familiar with these drugs. The facts are that a fair number of people have had LSD without serious untoward effects. The majority of acute untoward reactions with LSD—while severely troublesome—are not as yet proven to be inevitably permanently crippling. The suggestibility, despair, confusion, and latent disorganization of those who unwisely take LSD is, I believe, as crucial a variable as the chemical which renders them—unexpectedly—vulnerable to more trauma than they can handle. The habitual long-term use of LSD for pleasure or escape produces the *possibility* for the impairment of good sense and maturation. In this sense, the drug can reinforce a dissociative trend, leading to acute reactions or insidious disorganization and failure successfully to integrate life crises.

### The Risk of LSD “Trips”

*Impressions* gathered from various observers indicate that the experience—though not necessarily the outcome—of approximately 10% of any batch of trips (whether or not it is an initial one) can be potentially upsetting. With skilled guides perhaps many of these potentially unpleasant experiences are warded off or redirected. With skilled therapists, 1% or less of drug experiences may be unexpectedly traumatic. Certainly under these circumstances less than 1% is traumatic in outcome. With proper immediate follow-up most of these reactions should be therapeutically resolved. This appears to have been the case even though attempts to screen subjects in order to predict reactions have not yielded clear-cut guidelines<sup>68,69</sup>; and it has *not* been established that the drug is necessarily traumatic when given to severely mentally ill persons with the structure and follow-up available in therapeutic settings. In all probability older subjects (past 26 years) are less likely to have prolonged reactions linked to a single bad experience.

While such impressions require research, we can be confident—from the experience at

responsible research centers in the 1950's and in European clinics—that the setting and the ability to manage the experience and its aftermath are crucially important. We can also be reasonably certain that the risk differs when the drugs are taken under unsupervised circumstances; or with unwise therapists or guides; or by adolescents attempting self-analysis; or in specifically therapeutic experiences or in sensibly controlled research conditions. There is no question that good sense and trained skills can help to control bad LSD experiences and outcomes. The inescapable problem is that—excepting within narrow limits—a bad experience and an unwelcome outcome need not be associated and neither can always be predicted.

### The Drug Mystique

My current opinion is that the chief abuse of LSD is irresponsible, alluring, and provocative advertising. Havelock Ellis' enthusiastic report of the effect of mescaline,<sup>70</sup> while evoking alarm about possible abuse,<sup>71</sup> did not flower into a cult or into a topic for the bored mass media. An ideology couched in the language of drugs has been insinuated into youth culture by a band of quite articulate writers and vagrant professionals. These have replaced the old medicine show of yesteryear with an updated campus version complete with readings and tempting arguments if not pills to sell: "tune in, turn on, and dropout." A drug mystique has been welded to the underlyingly serious shifts and strains inherently experienced by the most potentially unstable group of any society—the adolescent and young adult.

We need not determine whether this is indeed a "now" generation valuing honesty, love, direct confrontation and uncomplicated action, and avoiding ideologies in favor of simple justice. These values, however germane to the LSD experience, were not born from the drugged mind. The Pied Pipers of LSD—peddling a drug which *can* enhance—poor judgment—would lure youth from the acquisition of competence (or even from the serious study of man's attempts to deal with the two orders of reality in his personal development and in his religious, artistic, philosophical, and scientific endeavors).

If we make the distinction between the psychedelic mystique and issues about the

utility of LSD, and if we attempt to account for the fact that the greatest abuse has been among the well-educated—or those who might be—we would in all honesty have to question the strange tolerance for these psychedelic follies in campus cultures. Forgetting both Freud and James, many of our teachers and intellectuals are either entranced or perplexed by stories of LSD-induced revelations. They appear neither to have learned from nor to teach from experience.

We seem to have forgotten that there are trained persons who in fact have more experience than the self-appointed gurus in coping with adolescent turmoil and the more serious dysfunctions. There are scholars and disciplines knowledgeable about man's attempts to understand subjective experience and its manifold aesthetic, literary, and intellectual expressions. The social psychology of groups, cults, conversion, enthusiasm, and utopias is hardly a new discipline. None of this seems to have crucially permeated our campus cultures in terms of new curricula or opportunities for both confrontation and reflection. In brief, much of this advertising may "take" because in exploring new frontiers we have lost confidence in our traditions and seem to have avoided dealing both with the rationalizations and the honest probings of the drug cultists and other youth on campus. In any event it is clear that "education" of the drug-prone young will require more than a troop of physicians. Some sophistication about the vicissitudes of man's gullibility might render our institutions less vulnerable to sophistry.

The psychedelic apologists insist they have the civil right to take any agent which does not harm others. It is, of course, hardly a private matter (and it is a civil matter) when irresponsible proselytizing—born from the spirit of oedipal revenge—leads to a number of drug-related cases in children and young adults requiring psychiatric care for either brief or long periods of time. It is often forgotten that the real momentum for such claims arose when a few psychologists who peddled the drug resented the notion that medical or even nurses training were required for the responsible administration of potentially toxic agents. The problem, of course, is that the psychedelic gurus—while

promoting frenetic advertisements for themselves—are not in a position to manage the consequences of their ideological schemes. When they do admit the drug might be dangerous, they do so by insisting that only the very courageous should take the drug! The rationalizations which prevail among those who experiment with LSD are often borrowed from these various preachings.

### Motives for Use

The motives for LSD use are varied. Sociologists refer to problems of commitment and alienation and at least add thereby to the younger generation's verbal mythology. We might remember that wild analysis and "psyching"—probing into one another's supposedly unconscious motives—characterized youth of previous generations, as did self-experiments with hypnosis even in the 19th century. Curiosity about the mind, about what *can* be experienced, about who one is and is to be can be expected. All the crises of adolescence<sup>72</sup>—the fluidity, shift of primal objects, narcissism, somatic changes, inexperience, and identity issues—play into the drug-taking culture.

Of the college users I have studied, a "need to feel"—to gain access to themselves and others—a pervasive sense of being constricted seem characteristic. In a recent report of a group in which Rorschach and other studies were available, this *theme* dominated even though outcomes sharply differed: these ranged from psychosis, to instability, to a reaction of bemused enlightenment.<sup>73</sup> One wonders whether the consequences of a "boundary-less" or destructively permissive upbringing leads to a lack of distinctions, a deficient recognition of self-experience especially when drugs or authoritarianism (masked as rebellion) are common ways to achieve feeling and a sense of distinctiveness.

Some college students clearly tried the drug as part of clique activity; taking the drug puts the student one-up—he has "been there." This is a challenge evoking interest among friends and can provide the basis for a loose group cohesion. For this group, magical transformation of reality, omniscient union rather than painful confrontation of separateness and effort is a lure. Old limits can be dissolved and—with a single gulp—

philosophical infants are transformed into sages. The frustration of years of inexperience are replaced by an intense arcane experience; it is as if the secrets of the parental bedroom are instantly transcended by the mysteries of the drug! The tables are turned as the young turn on; now it is the parents who stand by in perplexed, uncomprehending, and fascinated impotence.

Others sincerely feel they should confront an experience advertised to be so important. They can be dared by accounts of pleasant or assertedly profound experiences. They see the drug as an emotional fitness test, somewhat analogous to physical fitness. The issue for many is "control." They experiment with the right to drink and test their ability to stop. At this age they are doing the same often with cigarette smoking, studying, or with masturbation. In general, they are rehearsing their strength and autonomy at a time when their lives are largely unwritten. Many behaviors of this age constitute a probing for consequences—an impatient attempt to leap the barriers of time, to come to grips with life and seize the fruits and risks promised in the future, the threshold of which is now just barely visible. This underlies many of the grimmer statistics of the 18 to 25 age group, including accidents and suicide. One wonders if these represent the inevitable costs of learning the lesson of consequences, of limits, of mortality.

### Summary and Conclusions

With respect to the LSD experience, we know that many serious persons have reported some transient or even long-term value in it. There is some objective evidence that aesthetic appreciation can be enhanced; eg, an LSD group bought significantly more records for a period of six months.<sup>74</sup> If, though, we search for major productions of art, letters, music, or visionary insight few clear-cut monuments to the drug are available. Related to creativity, the effects of the drug do not seem to have compelled it. Huxley's greatest output preceded his mescaline states; he thereafter, as I read him, tended to write *about* drugs, not to create with them. If we ask whether there have been cultures which have eradicated mental disorders and disease with these drugs, or

groups which have seen the dissolution of deviant behavior, we find some slight association but no clear-cut overall differences that I know of in the general titer of human misery. In fact, the extensive use of these drugs is often associated with some form of psychosocial deprivation—an equivalent form of which is marked privilege (as in Brahmins and college students). That private satisfactions might have been achieved, that groups with the presence of these plants and chemicals could have attained some spiritual equilibrium seems apparent, but whether no alternative means exist within a culture is another question. That startling examples of new learning or even conversion can occur cannot be denied; but that we can as yet control and systematically reinforce drug-induced insights is uncertain.

We must ask whether a stable person is really under sufficient control of his motives and shifting circumstances let alone the dosage to take these drugs as a civil right for whatever personal reasons he wishes.<sup>75</sup> If so, who has to care for the consequences of his misjudgments? How can the stability of religious custom protect drug-takers who have little authentic orientation to religion and unstable groups and barely reliable leaders upon whom to lean. If we learn from the effects of drugs on much simpler biological systems, some side effects of any chemical cannot be avoided. Few of the advocates of unsupervised use seem to appreciate how difficult it often is to assess risk and value in drug administration—even in the best practice of medicine and psychiatry.

We should not forget to assess the cost of sustained euphoria or of pleasure states. We can seriously wonder if man is built to endure more than a brief chemically induced glimpse of paradise. Many authors have stressed that we are endowed with mechanisms with which to filter input and structure and use the fluid and irrational components of behavior. Heinrich Klüver<sup>76</sup> concluded his systematic and pioneering series of neuropsychological studies of mescaline with speculations about the drug's differential action on those vast subcortical areas characterized by emotionality and variability and those anchoring sensory-motor systems which aid in constancy. The question is perhaps not so much "expand-

ing" the mind—it is expanded enough—but to see if there are drugs (or developmental experiences) which can enhance a better and more creative coordination among these so-called regions.

Thus etched upon the variabilities of culture and personality are drugs with a certain skew toward that mystical realm of the mind which knows both psychosis and religion, both heightened and useful self-insight and impaired and distorted judgment about both the drugged and everyday world. Perhaps similarities and differences of these various chemicals and their effects could—if analyzed<sup>23</sup>—reveal means for finer control of these experiences—at least in terms of their intensities. The possibility or impossibility of such manipulations are questions of basic importance to our notions of how neuro-behavioral mechanisms are intrinsically related and the extent and means by which they can selectively be dissociated and controlled.<sup>17,77,78</sup>

In general, then, it seems that we have been more awed than aided by our experience with these drugs. They still remain agents which reveal but do not chart the mental regions; to do that we must employ our mental faculties available in the undrugged state. Accordingly we should do better than simply be amazed, repeating thereby the ontogeny of past encounters with mind revealing drugs. With these drugs we could learn to analyze how behavior is organized, disrupted, and influenced and see what nature can teach us about the ways in which the chemical organization of the brain is related to the dimensions of experiencing and behaving which comprise—to use an archaic term—the study of the mind.

This is an expanded version of a lecture given at the Michael Reese Hospital and Medical Center, June 6, 1967. It is a revision of a paper, "Perspectives on the Use and Abuse of Psychedelic Drugs," published in *Ethnopharmacologic Search for Psychoactive Drugs*, D. H. Efron (editor-in-chief), US Department of Health, Education, and Welfare, Public Health Service Publication No. 1645, 1967, with the permission of the editors. Sections on the Definition of a "Psychedelic" Dimension, Model Psychosis, and the Scope of Contemporary Problems have been extensively revised and that on Inherent Problems in Ethnopsychopharmacology and the Use and Abuse of Conversion omitted. Work with the drug in man and animal over the past ten years has been supported by Public Health Service grants MH-03363, 13186, and Career Investigator Awards M-1204 and K3-18566.



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