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UNDERSTANDING ALTERED STATES OF CONSCIOUSNESS:

A SYSTEMS APPROACH

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I regret that I cannot be present to present my paper today due to other commitments, as I was looking forward to interacting with anthropologists who had experience with altered states of consciousness in other cultural settings: my psychological colleagues are usually very narrow in this respect. I expect that Dr. Cowan will give an excellent presentation of this paper and be able to answer any questions that arise on my systems approach to altered states of consciousness, for not only is he thoroughly familiar with it, but our interactions several years ago were quite useful in my formulation of this approach.

In more than fifteen years of observing and researching the psychological phenomena loosely called altered states of consciousness (ASCs), I have been repeatedly impressed with the incredible range of phenomena

encompassed by that term and also by the high degree of unrelatedness of most of these phenomena. Hundreds of people have told me about radical alterations in their mental functioning, not only for relatively familiar areas as dreaming or strong emotional changes, but also for changes associated with such exotic procedures like various kinds of meditation, hypnosis, marijuana intoxication, intoxication with major psychedelic drugs, out-of-the-body experiences, mediumistic trance states, a variety of more idiosyncratic states that seem unique to particular individuals, shared ASCs by practitioners of particular spiritual disciplines, and experiences in that category that we vaguely label "mystical experiences." In terms of scientific understanding of ASCs, however, we have thousands of miscellaneous bits of data but few of them have any clear relationship to any of the others. Although I researched some of the above ASCs fairly extensively, I gradually realized that my own and others' researches were mainly adding more interesting but unrelated pieces to an already scrambled picture, so around 1970 I temporarily moved away from laboratory research and tried out the role of theoretician in order to make sense of this area. The result has been the creation of a theoretical framework or paradigm that I call a

systems approach to ASCs. To my general knowledge, it makes most of the psychological, anthropological, and physiological data about ASCs fall into a useful pattern.

In twenty minutes I can do very little toward presenting a comprehensive picture of this systems approach to ASCs, so I shall focus mainly on clarifying the concept of the "state" of consciousness. This systems approach has been presented in full in my recent *States of Consciousness* book, and that book can be consulted for details.

Constructed Nature of Ordinary Consciousness

A main outcome of my studies of ASCs has been to make me aware of how ignorant we are of the nature of our ordinary state. Particularly, there are two major, largely implicit operating assumptions used by almost all ordinary people and almost all scientists that seriously distort our understanding of our ordinary and altered states.

The first assumption is that our ordinary state of consciousness is somehow "natural," that it is simply the way consciousness ought to be. One effect of this assumption is to make the phenomena reported in ASCs seem odd or unusual: many of the phenomena we routinely experience in our ordinary state would be just as odd from a different perspective, but, being familiar,

we pay little attention to them. I trust that anthropologists are not as strongly taken in by the idea that our ordinary state of consciousness is natural as investigators in other disciplines.

The second assumption, related to the first, is that our ordinary state is somehow "normal," that it is the best or optimal organization of consciousness . Consequently ASCs tend to be implicitly viewed in a biased manner, as somehow being inferior or pathological. As we know how/^{important} it is to clearly separate the descriptive aspect of data gathering from the evaluation we/^{may} want to make later, it is clear that this is very bad for science to confuse these two processes.

Psychological data now show quite clearly, contrary to the above assumption, that our ordinary state of consciousness is a construction, not a given, and/^a specialized construction that is, in many ways, quite arbitrary.

The first slide illustrates a concept I learned in anthropology classes years ago (and here I would like to express my indebtedness to John Honigman, one of my most brilliant teachers), the concept of the spectrum of human potentials. Simply by being born a human being each of us possesses/^a certain kind of body and nervous system, operating in accordance with the physical

laws of our environment, and thus we have a very large (but not infinite) number of potentials which could be developed. Each of us is, however, born into a particular culture, to people who recognize the existence of only some of these potentials. Among those they recognize, some have been classified as "good" and thus have cultural pressure to develop them, while others are "bad" and actively inhibited or discouraged. Thus culture A in the first slide reinforces certain human potentials and deliberately blocks others. Culture B. makes different selections from the spectrum of human potentials: some may overlap those of culture A, others will be totally different. As we well know, each culture is liable to view the other as strange, savage, or malicious. Both cultures remain ignorant of a large number of human potentials. Some of these potentials may remain latent, and have the possibility of being developed later under unusual circumstances, others, if not developed within a critical period, may become permanently inaccessible.

The second slide briefly outlines the enculturation process.

We do not have time to consider it in detail, but basically the many unorganized potentials of the infant, under pressure from parents, teachers, peers, and

interaction with external reality gradually become shaped into a smaller but organized number, and it is the habitual operation of the developed psychological potentials that constitutes our ordinary state of consciousness. Through psychological processes such as conditioning, we develop an ordinary state of consciousness that might be better called "consensus" consciousness, a habitual pattern of mental functioning and styles of coping with reality that reflect the goals, values, advantages, and disadvantages of our particular culture. Naturally there is considerable individual variability here, depending both on chance circumstances in the encultural process and individual reactions to it, but in general to say that a person is in an "ordinary" state means that his mental processes reflect the values of his culture. My systems approach views basic awareness, the undefinable but ultimate aspect of consciousness behind more articulated phenomena as common to all functioning human beings, but the relatively permanent psychological skills, habits, and structures developed in the course of enculturation constitute the structures that are activated by the play of awareness, and so lead to "consciousness," that compounds basic awareness multiplied by learned, enculturated psychological structures. While we have some voluntary

control of basic awareness, it usually runs in habitual patterns which, in turn, have been laid down during the course of enculturation.

States of Consciousness

Now let us consider the concept of "states" of consciousness in a general way. Since a particular human potential is developed by a given culture determines what we can experience, what we can be conscious of, the first slide could be re-viewed as a spectrum of experiential potentialities, and then we would say that culture A, through its enculturation process, has effectively patterned the experience of its members along certain common lines and restricted it from certain other lines of experience. Culture B, by making a different selection, has given a different experiential patterning to the everyday conscious experience of its members. Thus the two foci, instead of being labeled culture A and culture B, could be labeled state of consciousness A and state of consciousness B, and so illustrate the different consensus consciousnesses for two different cultures. We can use this same analogy, however, to clarify one of the two basic ideas underlying the concept of a state of consciousness, namely that within the same individual there may be two or more possible foci of organization of consciousness, each of

which represents a certain selection of human potentialities. Thus state of consciousness B becomes an altered state of consciousness with respect to state A. If a person is unhappy in his or her ordinary state, one way of seeking greater happiness might be to try to reorganize his or her mind in a fashion we call an altered state where the (more desirable) selection of potentials from focus B is available. The reasons for desiring such temporary or permanent reorganization can be neurotic or healthy, depending on the state of the culture in which a person lives.

Now let us approach the concept of state from a different direction.

Mapping Experience

The terms "state of consciousness" and "altered states of consciousness" are now used so imprecisely to cover so many different things, not only in popular but frequently in scientific usage, that it is important in my systems approach to clarify what is meant by state. The term "trance" has been used by anthropologists in a similar loose way. Both "state" and "trance" are not identical with whatever the momentary content of consciousness happens
it is
to be, but/the way the words are all too frequently used: they refer to far-reaching, radical changes in mental functioning.

A way of clarifying the concept comes from using the procedure of mapping an experience. We can usefully keep track of/object's or individual's movements in physical space by setting up a coordinate system and then locating the individual's position in that space at various times. In principle we can also map a person's position in experiential space at any time if we identify and define and find ways of measuring the important dimensions of experience that quantitative variation occurs along. Experiential, behavioral, and physiological measures can be combined in fruitful ways here, although I emphasize experiential dimensions. We might define a dimension as "rationality" for example, where we can give a person a brief problem every few minutes and score the rationality of his answer, i.e., the degree to which his answer follows generally accepted rules for a certain consensus reality. We might then find that rationality varied from very high values to very low values. A second dimension might be ability to visualize or hallucinate, the degree to which an image that we believed to exist only within the mind has the intensity associated with an actual sensory perception versus partial degrees of such intensity.

For simplicity, assume that two dimensions would be adequate for study

of a given problem, even though we really need multi-dimensional maps for the richness of human experience. The third slide then can give us a specific example of this kind of experiential mapping. Suppose, working with a single individual, that on twenty-eight temporally successive occasions we measured both the degree of rationality and the ability to visualize. For each pair of measurements we put a circle on the map defined in the slide. Suppose we obtain the results shown, namely that our measurements obviously fall into three discrete clusters, which I have drawn lines around for convenience, and do not seem to fall anywhere else in this two-dimensional space, even with additional observation. This kind of mapping, done implicitly, is behind the basic concept of a "state" of consciousness. Done consciously and precisely, it is the operation for defining states within the systems approach. Here we have data that indicate that experience falls into several discrete clusters or ranges of functioning, and that these clusters are importantly different from one another.

For the specific example shown in the slide, I have put in two universally known and one more exotic states. The cluster in the lower right hand corner, where rationality ranges from moderate to very high and ability to

visualize ranges from somewhat low to fair is, for most people, their ordinary state, consensus consciousness for our culture. The cluster in the upper left hand corner, with very high ability to visualize but rationality often quite low, is the state of nocturnal dreaming, where we experience the visual world which seems quite intense to us at the time, but, by consensus consciousness standards, we often take considerable liberty with rationality. The upper right hand corner of the graph illustrates a state characterized as ^{as} by/high in ability to visualize as in ordinary dreaming, the "hallucinated" scenery seems quite intense and real, but rationality also seems quite high. This is a state that has been termed lucid dreaming. This is a special type of dream, usually arising from an ordinary dream, in which a person reports that he "wakes up" in that he usually remembers his identity, realizes that he is actually asleep and that he is dreaming, and that the dream world around him must be hallucinatory, but even though he feels perfectly rational and his mental functioning seems to work just as yours does now, he nevertheless finds himself experientially located in the dream world.

This kind of mapping allows, of course, for changes within clusters:

no state is static. But by state we mean that in spite of various changes along various dimensions, our experience does seem to fall into a recognizable area of experiential space.

Discrete States of Consciousness

While the kind of experiential mapping of the third slide adequately conveys the idea of quantitative variation of particular human potentials in various altered states, it does not adequately convey the idea of qualitative changes, which does indeed get reported. Nor does this kind of mapping adequately convey the organizational qualities of the potentials involved in a state of consciousness, the fact that they form a stabilized, interrelated gestalt from which arise system properties that cannot be deduced just from a knowledge of the parts. The first slide shows a better way of representing an altered state. If you will look just at the heavy geometrical objects which symbolize various human potentials and the heavy lines connecting them, what you have is a kind of time lapse photograph of a state of consciousness. Attention travels in habitual, conditioned manners from one potential to another, and the shape that this leaves over time gives you the system qualities, the gestalt properties of^a state of

consciousness. Thus our analogy shows a state that has a "star shape" feel to it. Indeed, when we question people as to how they classify what state of consciousness they are in, sometimes they try to notice whether particular experiences that they can use as markers are occurring, but often they, in a sense, whollistically scan the whole field of their experience and identify this particular shape. Thus if I ask you right now would you want to bet fifty dollars that you're actually dreaming about being here and you'll wake up in bed in five minutes, I doubt that anyone would take me up on the bet. Some of you would immediately just scan the pattern of your experiences and see that this is the pattern you associate with your ordinary waking state, with no doubt about it. Others might note particular qualities present that are available only in their ordinary state, and/or a lack of certain qualities that they associate with a dreaming state, and make a decision on that basis.

In order to rescue the terms "state of consciousness" and "altered states of consciousness" from ambiguity so they could have reasonable scientific usage, I have proposed the terms discrete states of consciousness (d-SoCs) and discrete altered states of consciousness (d-ASCs). A d-SoC for a given individual is a unique system or configuration of psychological structures

or subsystems. While these structures and subsystems show some quantitative and minor qualitative variations in the way in which they function within a d-SoC, nevertheless their pattern of interactions retains a recognizable identity allowing the classification of/^astate. Further, the operations of these structures and subsystems interact with one another and stabilize each others' functioning in various ways to protect the integrity of the system, the discrete state, in spite of a wide range of input from the environment and a wide range of actions performed by the person. Understanding a state of consciousness then, involves not only an understanding of various psychological components of it but a feel for the pattern of the whole.

If you will return your attention to the slide now and look at the light connecting lines, you can see an illustration of a discrete altered state. While there are some structures or functions that were present in the ordinary state still present, some new potentials that were latent in terms of the ordinary state are now part of the functioning system, and the overall pattern, the overall style of use of these various potentials is also different. By analogy, it is now a kind of rectangular state of consciousness rather than a roughly star-shaped one. The differences between

any two discrete states then, exist not only on a molecular level, but also in terms of their emergent system properties. The same kind of argument can, of course, be applied when talking about two cultures, but one must find not only specific trait differences but a different style of organization of these traits.

Note consciously that the adjective "altered" is only descriptive, it means that, given one discrete state as a baseline, usually our consensus consciousness, radical changes occur with respect to it.

At our present level of knowledge, this systems approach to defining discrete states is mainly applied to what are commonly recognized as radical reorganizations of consciousness, such as dreaming, lucid dreaming, hypnosis, intoxication with various drugs, etc. I'm also convinced that quite strong emotional states also bring about sudden and radical reorganizations in the functions of consciousness, particularly states such as high sexual arousal.

Because time is short, I must skip over many of the most interesting aspects of the systems approach that follow from this basic conceptualization, such as the vast importance of individual and cross-cultural differences, what the major structures and subsystems of consciousness are, the processes

whereby discrete states are stabilized, and the basic nature of the ways in which discrete altered states are induced in spite of the immense variety of practices used cross-culturally, and go directly to some of the methodological consequences of the systems approach for researching this area.

Methodological Consequences

A primary function of any scientific theory is organizational, taking a mass of data and organizing it in more useful categories. This is the primary function of the systems approach to discrete altered states now. In terms of my general understanding, it works quite well: my students and I are applying it to the existing literature on discrete altered states in a more systematic way this year. The approach can also lead to testable predictions, being potentially capable of specifying, for example, states of consciousness that can not occur because of the basic nature of the human mind and nervous system, but, given vast gaps in even our descriptive knowledge of most discrete altered states, I am not emphasizing prediction at this point so much as data gathering.

The prime methodological consequence of the systems approach for me, although it was not my intention while developing it, is the way in which

it draws attention to things that we usually take for granted, such as the value judgments implicit in a term like "normal" consciousness, the way in which we take for granted the stabilization of our ordinary consensus consciousness, even though it is a highly complex construction, the shared biases that the scientific community has because of our common consensus reality, biases that I hope anthropologists are less subject to, the crucial importance of concepts like basic awareness and attention, and the importance of the old mind-body problem: because quite drastic phenomenological changes are sometimes experienced in various d-ASCs, the question of mind-body relationships is open to empirical investigation, not something to be bypassed and left to philosophers to argue about.

Second, the systems approach emphasizes the importance of a detailed study of individuals. We must carry out a detailed mapping of the experiential spaces of actual individuals to see how well the concept of particular discrete states fits their experience, and only when we have actually obtained such commonalities across individuals in detail can we start using common state names and speculating about the ultimate nature of the mind. In practice, of course, we already have common state names, but I am convinced that they now hide a multitude of important differences. You may

have, for example, half a dozen individuals in one room who have all ingested a large quantity of marijuana, but to assume they are all in basically the same discrete altered state is very questionable. This is particularly true when the cultural or subcultural background of the individuals varies.

Indeed, as the systems approach is applied in a detailed way to ordinary consensus consciousness, I think we shall be quite surprised to find that there are quite different organizations of everyday consciousness that all get by as consensus consciousness because we have an implicit pact to ignore these differences!

A third major methodological consequence of my systems approach follows from the fact that it recognizes that any discrete state of consciousness is multiply stabilized, by both physiological and psychological processes. Thus when we look at the way altered states are induced, the induction procedures, we come to realize that while it is very objective to describe whether a given induction procedure has been engaged in, that does not tell you whether there was actually any alteration of consciousness. Although behavior has been the fad in psychology for the last forty years, the study of altered states forces us to look at experiential data, so, for example,

the only way to state unequivocally that an individual is in a particular discrete altered state is to conduct some kind of experiential mapping that shows that his experiences actually fall in that region of experiential space. Taking a psychoactive drug, going through a certain ritual, listening to a hypnotist talk, none of these guarantee that any discrete altered state will develop.

Finally, the highlighting of the cultural relativity of our ordinary consensus consciousness and the biases that limit and condition it, plus a recognition that, in various discrete altered states, there are sometimes radical shifts in the nature of these biases, led me to propose, several years ago, that we develop state-specific sciences. Although I can mention it only briefly here, the essence of scientific method (as opposed to the particular products and philosophies that have become identified with science) is an emphasis on disciplined observation, theorizing, prediction, and full communication with colleagues about each of these processes, a knowledge-refining procedure about some segment of reality that makes our conceptualizations fit our observations to a better and better degree. While traditionally the area of interest is something/ⁱⁿthe external, physical world,

