

A HOLISTIC-ORGANISMIC THEORY OF CONSCIOUSNESS¹

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The fact of consciousness continues to stand both as an inescapable challenge and as a beckoning opportunity for the psychological theorist. Consciousness may be seen not only as a fundamental concept in psychology but also as a focal point of a basic issue. To reject consciousness is to open the corridor to mechanistic and fragmenting varieties of theory; to utilize systematically the consciousness concept leads consistently to organismic, holistic or unifying theory. Reference can be made to only a few who have helped lead the way toward the latter view.

Jan C. Smuts, who is credited (1) with coining the term "holism," has said, "Mind is, after the atom and the cell, the third great fundamental structure of Holism" (17, p. 224). Smuts seemed also to have anticipated the theory of a regulatory consciousness about which the author has previously written, for he said, "Mind is thus the direct descendent of organic regulation and carries forward the same task" (17, p. 224). For Smuts, the concept of holism provided a meaningful perspective for animate as well as the inanimate aspects of the universe. From his point of view, for the animal and the human being in particular, consciousness, or mind, played an intimate and basic role in the total pattern of living. To neglect or to reject the role of consciousness in life, would, therefore, be a gross violation of the fundamental principle by which the universe is given dependable meaning.

The holistic concept is joined and reinforced by the coordinate concepts of the Gestalt and the organismic theorists. Kurt Goldstein (10) is most frequently associated with the organismic approach, by way of the negative or pathological. His chief rule is "that any process never completes itself in a circumscribed reaction . . . that wider areas, indeed the whole organism, always participate in any reaction" (10, p. 213). In Goldstein's organismic psychology the role of consciousness is important. He says, "Yet all activity, be it reflection, thinking, feeling, or doing, always begins with a conscious attitude, in the sense of being aware of something, knowing about a situation, a task" (10, p. 316).

In spite of this fundamental position, Goldstein does not go on to develop it according to its implications. Other segments of his writing

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suggest the reason as derivable from too much influence from the Freudian emphasis on the determining powers of the unconscious.

To correct this type of overemphasis on unconscious factors and to restore to psychological theory a complete and unified organism in which the self-determining capacities of the individual may be recognized, is one of the chief purposes of this paper. But such a goal cannot be realized until the role of consciousness in behavior is more clearly understood.

In a series of earlier papers, the theory of consciousness as a regulatory field for behavior has been outlined and partially developed. The initial statement (4) briefly presented the point of departure as derived from the facts and principles of the physiological gradient. Further development in the directions of psychopathology (5), treatment in a neuropsychiatric hospital (6), and for psychotherapy (7) appeared subsequently. The present paper outlines the core segment of a systematic theory of consciousness that has gradually become more comprehensive and widely applicable to psychological problems.

Clearly and obviously from a variety of other sources the concept of consciousness is slowly being brought back into psychological theory and experiment. The moves are cautious—as they should be—but reflect a crudeness of concept that is contributed by the persistent residuals of Cartesian dualism, by the influences of the more extreme varieties of positivism, and by a clear lack of practice in dealing with the concept.

Most of these primitive concepts of consciousness represent some variation of the electric light model. Analogous to the light's being on or off, one may be awake or asleep, conscious or unconscious, aware or unaware. With such a simple conceptualization of consciousness, the experimenter is hardly prepared to provide in his experimental design for any degree of respect for the role of consciousness in behavior. Rather this oversimplified approach grows out of long-term predispositions to assume that consciousness has little or no relevance to behavior. This strange and curious state of affairs grows largely out of Cartesian dualism, but has been perpetuated by Leibnitz' later doctrine which for many generations has made a farce of our concepts of integration and organismic unity, namely, psychophysical parallelism. Many modern physiologists and psychologists tend to perpetuate, in some form, the old Cartesian dualism because it gives them a kind of *habeas corpus* such as Descartes, himself, won to some extent from religion and philosophy.

One good example of a modern physiologist's use of parallelist concepts is Gerard's recent reference to "the use of causal notions, particularly of statements crossing between the languages of mind and body. An idea cannot fire a neuron, nor, in a rigorous sense, can ether produce unconsciousness" (9, p. 178). This type of conceptualization results in bifurcation and fragmentation of the organism rather than in integration.

In contrast to traditional dualism, consider the two following statements: (a) Consciousness is an expression of the highest levels of organismic regulation and integration. This is derivable from the facts and principles of the physiological gradient (see below). (b) Consciousness, in its phylogenetic development, has always had intimate relationships to action. If these approaches can be made plausible, then a basis may be formulated that can encourage not only the current, but rather timid, uses of the concept of consciousness, but also conceptualizations that are more relevant to behavior and the unity of the organism. The purpose of this paper is to offer a more adequate, relevant, and useful concept of consciousness.

A DEFINITION OF CONSCIOUSNESS

To talk about consciousness requires a definition, which in turn requires an approach or frame of reference by way of a set of assumptions. The assumptions, with brief comment, are as follows:

1. *Consciousness, however it may be defined, is a product of living protoplasm.* Thus, it is assumed that consciousness is strictly biological. We have no scientific evidence that this product or function occurs except in the matrix of living cells.

2. *Acceptance of the principle of continuity in the evolution of the animal series leads to the assumption that human beings have no monopoly on the basic general characteristics of consciousness.* Descartes assumed on a kind of solipsistic basis that only human beings were conscious and that the lower animals were unconscious automata. There are still many expressions of this convenient dichotomy in our culture, but if one is to see life whole and in perspective, the Cartesian notion must be outgrown.

3. *The living organism may be conceptualized as an open system of energy.* This statement coincides with the general systems theory of von Bertalanffy (19) and Miller (13). The complexity of the organism requires the further assumption that it is a system of energy systems.

Examples of sub-systems would be genes, chromosomes, cells, and digestive, glandular, respiratory, and circulatory systems. The term system implies that the energies of the organism become not only interactive, but also patterned. Furthermore, the open energy system of protoplasm has sufficient stability to maintain its identity during transactions of energy with surroundings.

4. *These sub-systems of energy that in patterned organization make up the total organism tend toward a kind of hierarchy such that some systems are more controlling or dominant, while others are more subordinate.* This statement is a direct derivation from the principles of the physiological gradient. The physiological or oxidative gradient describes the relative rates at which the organism utilizes oxygen. From head to tail of axiate organisms, the oxidative rate gradually decreases. Regions of highest rate are dominant and regulate regions of lower rate. Since the head not only regulates physiological processes but is also the region where consciousness, as generally experienced, emerges, it is assumed that consciousness is a regulatory field for behavior.

These four assumptions are a necessary frame of reference for a definition of consciousness. Eleanor Chalfant (3) stated that consciousness has never been adequately defined, and John Dewey (8) had warned that consciousness could not be defined; but the impossible should be attempted if an integrated, comprehensive view is offered: *Consciousness is, then, a biological system or field of energy processes functioning at a level of high regulatory dominance in behavior, such that behavioral resultants have not only increased chances of relevance to immediate and future issues but also increased chances for flexibility in adaptive response.* This definition is initial and minimal and provides a point of reference for later elaborations.

Among the implications of the definition, a few may be selected. Consciousness is one of the biological systems that make up the living organism. Furthermore, consciousness is a functioning part of a totality which arises from within the organism rather than being added from the outside. Consciousness becomes, therefore, an object of legitimate scientific study by whatever means may be invented to make this system more accessible and tangible. The dichotomy of subjective-objective should be replaced by a continuum of degree of tangibility (cf. 12). This is necessary, for as soon as it is decided that consciousness is relevant to behavior, the responsibility immediately

develops for creating additional degrees of tangibility in the direction of the so-called subjective or less tangible. Since to conceptualize, to systematize are initial steps in the creation of tangibility, it is hoped that this conceptual approach may contribute to this end.

A FUNCTIONAL THREE-LEVEL THEORY

Against this very sketchy background, a functional three-level theory of consciousness will be outlined. In doing this, the above described concept of consciousness must be broadened.

Level 1. This is phylogenetically the oldest, and its qualities are assumed to be intimately related to the tissue spread of excitation. This spread is communicative, integrative, and action producing. In the simple organism, Level 1 is assumed to be a primitive, generalized, sense-feeling growing out of contact-chemical sensitivity. Baldwin (2), Hall (11), Ribot (14), and Ruckmick (16) have suggested a similar concept. At this phylogenetically ancient level the organism had probably little, if any, differentiation between what the human being distinguishes as feeling and sensation. The early primitive chemical sense probably operates in a homogeneous or undifferentiated way that pervades the whole organism.

Phylogenetically old structures of the central nervous system reveal a high dominance of the chemical sensitivity. In the fish brain, for example, the olfactory lobes are the largest and appear to be the chief regulatory centers. Over the course of phylogenetic development the structures serving olfactory-gustatory sensitivity remain closely related. On the assumption that the principle of continuity makes man a part of the animal series, it becomes of great importance to reflect briefly on the chemical S-R's of man. The affective character of olfactory-gustatory experience is predominant. Language patterns reveal this fact, for it is difficult to describe odors and tastes without using words that are affect-laden. For example, smells are described as nauseating, delightful, repulsive, enticing, and tend to arouse approach or avoidance responses. A feeling-action relationship is clearly present.

A closer look is instructive. Since, in the human being, verbalization allows direct access to this level, three basic characteristics of this phylogenetically old function of feeling or affect may be noted: (a) feeling tends to be generalized, (b) it is convincing, (c) it is productive of action. Feelings such as illness, fatigue, euphoria are generalized and seem to pervade the whole body. Furthermore, logical argument

is never as convincing as a strong feeling, and unless blocked or frustrated, the feeling flows quickly into action. If feeling is established as the primitive forerunner of higher levels of consciousness then there are many important implications for a psychology of behavior, one of which is that consciousness in the broad sense has intimate relationships with action. One may wonder in passing how consciousness and action became conceptually separated.

Level 2. This appears, phylogenetically, as sense modalities become diversified. To the original contact-chemical sense, there were added light sensitivity and later vision, along with audition as an elaboration of response to vibration. These developments represent an advance over the simple sense-feeling associated with primary or undifferentiated sense responses. The integration of these diversified sensory resources can be said to result in a situational consciousness. The term situation is used to represent the fact that the organism can now react to a complex of physical stimuli or informational cues from a variety of sources and give coherence and unity to these stimuli. But the essential issue is that the situational consciousness perceives and deals with meanings that are primarily immediate in both time and space. The rudiments of what existentialists are referring to as the "here" and the "now" probably have their beginnings in situational consciousness.

At this level, the ecological factors and the organism's characteristic patterns of interaction with those factors are taken for granted in naive, unreflective ways. The feeling or affective background, to whatever degree it is aroused, will tend to increase intensity of behavior, but the responses are primarily to the immediate and have a minimum of what might be called the critical or reconstructive. Action and consciousness are still directly and intimately related. If the stimulus-response paradigms are appropriate in behavior at any level, they are relevant to these more primitive modes of response.

Now that the theory is dealing with responses where nervous system comes easily into focus, it must be clearly stated that consciousness is not assumed to be a mere by-product of nervous system but an inherent quality, in some degree, of living tissues, which the specialization of nervous tissue facilitates. The integrative self-regulatory predispositions of tissue are already present; neural tissue serves to facilitate the transmission and integrative characteristics of the protoplasmic matrix that are phylogenetically older than nervous system.

Respect is, therefore, invited to protoplasm in general and not just to nervous system in particular.

Level 3. Here we find the evolved capacity for reflective consciousness. Consciousness can become conscious of itself. To be able to be conscious of the fact that one is conscious provides dimensions of organization, control, and problem solving which are basically enabling for all the social and intellectual achievements of man. The human being functioning at this level has increased chances of being self-critical (constructively or destructively), more systematic in problem-solving procedures, more insightful and penetrating in his self-correcting reactions, and more able to reintegrate the facets of an issue. The implications of this level of consciousness for action are less direct and less immediate.

For a reflective consciousness to be functionally effective, an associated capacity had also to evolve, namely, to delay reaction in spite of the pressures of stimulation. It would hardly be possible for the capacity of reflective consciousness to reach its high degree of perfection unless there was this associated capacity for central inhibition which allows for delay in reaction. Rosenzweig has pointed out, "If a response occurs immediately on the reception of the stimulus there is no possibility either for the accumulation of concrete content necessary to abstract thinking or for gratification delay of a providential kind" (15, p. 386). In complex situations, action has increased chances of appropriateness if delays in response allow a review or pre-response testing of alternatives.

One may note in passing Edward Tolman's (18) interpretation of the vicarious trial-and-error behavior of the rat when the animal reaches in the maze a choice point. He suggested that as the rat delays its behavior and looks back and forth from one alternative to another, this is probably a moment when consciousness is dominant for the rat. As animals increase in complexity, particularly with the development of additional amounts of cortical tissue, the capacity for delay of action increases greatly, along with the retention of the elements of the situations eventually requiring action. Thus, finally, man has developed symbols for the representation of situations, issues, problems, plans, and attitudes. These symbols, one of the fundamental creations of reflective consciousness, contribute not only to the ease of delay of reaction but also to the relevance of response to a problem when action becomes appropriate. On the basis of these twin capacities, for the delay of action and for the reflective consciousness, civilizations have become possible.

A RESOLUTION OF DUALISM

This capacity of man for the delay of action in favor of extending the period of reflective consciousness, is assumed here to be a source of much confusion about the essential biological function of consciousness. Man can become so engaged in his own reflective thoughts, with relevant action so indefinitely delayed, that one may easily conclude that action and thought have little in common. The elaboration of thought for its own sake is, of course, also highly possible on the basis of capacities of functional Level 3. The concept of thought as something in and of itself, existing in its own right, often in some points of view with independence from body, easily became the product of some reflective people. A short step from this is, of course, the body-mind dualism notion that has formed a basic point of reference in many philosophies and religions. It is as though the reflective consciousness allows men to peer into the pool of their own thoughts and become enamored by them as Narcissus is said to have done by the mythical pool that captured him by reflecting to him his own image. Thus, man builds for himself myths and legends that elaborate the felt mysteries of his reflective and action-delaying consciousness. The more he has pondered the character of his own thought, the more it has seemed to represent a world of its own in contrast to a world of tangible objects. The additional step of identifying himself with this immaterial world has been often and easily taken. Man has often felt that to solve the mysteries of this thought-mind-immaterial world would be to solve the problem of the nature of man himself. This is essentially true, but a misconception of the nature of reflective consciousness can lead to many blind alleys, even though some have been as enticing as they have been deceptive.

The complications and entanglements of philosophical dualism are seen as one of the outstanding and misleading products of Level 3. Psychologists are still more often than is typically suspected approaching their problems with some kind of implied dualism as a tacit point of reference. So complex and even unpredictable have been the behavioral products of Level 3 that it becomes understandable—even if not acceptable — that psychologists would seek to deny the importance of consciousness or even its existence in a science of behavior. However, while the capacities and functions of Level 3 enormously complicate man's behavior and make more difficult a science of behavior, the point should remain clear that the conscious function has action implications. The fact that action may be delayed, redirected,

or eventually inhibited entirely, is still compatible with the biological significance of consciousness.

The need of the psychological scientist is for a concept of a unified organism. Dualism has traditionally stood squarely in the path to this end. Bifurcation of the organism into separate entities of mind and body has required various complex attempts to provide for unification in spite of the apparently contrasting modes of existence. The curious logic of psycho-physical parallelism is but one example. At the same time, escapes from the problem have been attempted by means of either a mechanistic or idealistic monism, neither of which has ever been satisfactory. Mechanistic monisms, while having scientific value up to a point, finally become "nothing but" reductionistic approaches that eventually stultify, degrade, and omit essential characteristics of behavior. Mechanistic emphases have often been reactions against animism and vitalism, along with an effort to purchase unification concepts at the expense of rejecting such a characteristic of the organism as its degree of, or capacity for, self-determination. On the other hand, idealistic monisms make interesting philosophical reading but have little to offer the experimental scientist. The concept of consciousness offered in this paper is an attempt to break this impasse.

With the approach that has been outlined, the principle of continuity is preserved and the unity of the organism is maintained. Separation of a mind from a body becomes unnecessary, for there was never any separation at any point in phylogenetic development. Consciousness becomes a functional and inescapable part of the subject matter of psychology, for it is seen as a regulator and an integrator of behavior. Dualism need no longer be a source of conceptual frustration if it is seen as an outgrowth of one functional (Level 3) aspect of a broader consciousness that has always been intimately biological. This is not an invitation to reduce mind to the physicalism that is characteristic of 1962. It is rather an invitation to increase our respect for living protoplasm and to develop whatever physiological concepts are necessary to understand protoplasmic function without rejecting any of its operations.

SUMMARY

Consciousness is defined as a biological system or field of energy processes, functioning at a level of high regulatory dominance in behavior such that behavioral resultants have not only increased chances

of relevance to immediate and future issues but also increased chances for flexibility in adaptive response. Since consciousness is relevant to behavior, the dichotomy of objective-subjective should be replaced by a continuum of degree of tangibility. Research must create additional degrees of tangibility in conquest of the so-called subjective. Three functional levels of consciousness are described in phylogenetic frames of reference. These are sense-feeling, situational consciousness, and reflective consciousness. All levels are intimately related to action. However, because reflective consciousness is associated with the capacity to delay action for varying lengths of time, the illusion has developed that thought and action finally have little in common. This illusion has led to the various philosophical blind alleys of dualism and has resulted in conceptual bifurcation and fragmentation of the living organism. The approach presented here provides a basis for conceptual and functional unification of the organism.

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