

# A DUAL-ASPECT APPROACH TO THE MIND-BODY PROBLEM

ROGER E. BISSELL

*Nashville, Tennessee*

DOWN through the ages, numerous scientists, theologians, and philosophers have wrestled with the puzzle as to the ontological status of man's consciousness, or mind. It is a difficult, persistent, but fascinating problem; witness the volume of literature on the subject.

Two principal concerns of those who work in this area are what can be referred to as the problem of *mentality* and the problem of *intentionality*. The latter, which is beyond the scope of this paper, is the problem of the nature of the relation between man's consciousness and reality, especially that between knower and known.

The former, also better known as the Mind-Body Problem, is the issue on which this paper focuses: the problem of the nature of the relationship between man's consciousness and his body.

The view of mind upheld in this paper is a particular version of the Dual-Aspect theory of mind, which may be briefly stated as follows: *any given process of the mind is actually one and the same process as some particular electro-chemical process of the brain, so that what appear to be two distinct processes are actually just two aspects of one and the same brain process, i.e., they are actually just one and the same brain process viewed from two different cognitive perspectives.*

This paper does not aim at a complete survey of all the various mind-body theories. Other theories of mind will be considered mainly in virtue of the problems they leave unsolved and which give rise to consideration of the Dual-Aspect theory. The primary task of this paper is rather a presentation of the Dual-Aspect theory of mind, the solution it offers to the mind-body problem, and defense of it against some major objections.

A second crucial thrust of this paper is a development of the implications of the Dual-Aspect theory of mind for the free will problem, concerning the nature of human action. It will be shown that the Dual-Aspect theory leaves room for a conception of human action which is radically different in normative implications from that conception which is widely promulgated in the social sciences today.

## I. THE DUALITY OF MIND AND BODY

Throughout history, some sort of distinction between the mind and the body has been maintained by the vast majority of men. But there is and has been considerable difference of opinion about the *nature* of that distinction.

Some propose that we view mind and body as two radically different *entities* somehow coexisting and interacting in the same living person. This Cartesian view of mind as an irreducible primary, an immaterial sort of 'substance' or entity, fails to explain how such a substance and its interactions with the body can be detected, let alone how something immaterial can interact causally with something material, like the body.

Others propose that we instead view mind as *process* (or as a cohering group of processes). Some process theorists further assert that there is no such thing as an entity, that the body, like the mind, is instead a set of processes.<sup>1</sup> This view is based upon a straw-man conception of 'entity' as absolutely static and unchanging, and the consequent false dilemma which that sets up.<sup>2</sup>

Certain other process theorists, rejecting this extreme position, more plausibly maintain that the mind is a cohering set of mental processes, somehow distinct from physical brain processes, yet intimately related. A brief consideration of their respective difficulties will set the stage for the Dual-Aspect theory.

*Process-Epiphenomenalism*, or one-way process interaction, is the view that mind or mental processes have no "causal efficacy" with regard to the body, (that the mind cannot contact

the body), and that the mind is merely a passive by-product and concomitant of brain activity, like the shadow of one's body or the echo of one's voice.<sup>3</sup> This theory is caught in the cross-fire between Interactionism and Parallelism. If either part of its thesis is true, then its other half cannot be, and it thus reduces to one of the other two theories: (a) If the evidence supports the claim that physical brain processes cause (contact) mental processes, then it also supports the claim that mental processes have a reciprocal causal power with respect to physical brain processes, as maintained by Interactionism; (b) If on the other hand one denies the causal efficacy of mental processes, the same reasons also support a denial of the ability of brain processes to cause (contact) mental processes, as Parallelism contends.<sup>4</sup>

*Process-Interactionism*, or two-way process interaction, is the view that there are mental processes distinct from all other bodily processes, and which cause physical brain processes, and vice versa.<sup>5</sup> In literal form, this view meets two fundamental problems: (a) First, it asserts that a process causes another process, which is based upon the logically untenable mechanistic model of causality as a relationship between *actions*.<sup>6</sup> Instead, causality is the cause-effect relation between substances (or entities) and their activities.<sup>7</sup> All processes are processes of entities, being carried out by an individual entity as a whole, by part of an individual entity, or by part or all of a number of individual entities. And whenever entities (or parts, or groups of them) act so as to produce by their actions a change in some other entity (or part, or groups), they are said to be causally *interacting* with the other one. Actually, then, Interactionism is properly concerned with a human organism whose various parts interact so as to cause a physical brain process, and interacting with other parts of the organism, consequently cause a mental process; and vice versa. In other words, Process-Interactionism collapses into Substance-Interactionism, albeit a more plausible variant than the Cartesian view, since both substances here are of the same type (*viz.*, material parts of the same living organism). But, short of identifying the mind with the body or brain, this new position has nothing to say about interaction of *mind* or *mental processes* with the body or brain. (b) Secondly,

the Process-Interactionism view contends that a process located in space (the physical brain process) causally interacts with a process *not* located in space (the mental process). The difficulty lies in the fact that processes do not have spatial locations, except in a secondary sense, owing to the fact that the entities undergoing those processes themselves possess spatial locations.<sup>8</sup> Thus, the question arises: Where is the part of the human body or brain which undergoes a mental process, separate and distinct from all physical brain processes? This location apparently has not yet been found, nor is it clear how it might be. The high degree of correlation established between these allegedly distinct processes by neurophysiological experiments seems to indicate that perhaps they are generated by one and the same part of the brain, for any given pair of mental and physical brain processes.<sup>9</sup> If so, then to view them as actually distinct processes is not the simplest explanation of their relation.

*Process-Parallelism* is the view that there is no causal interaction between mental and brain processes, that they co-exist parallel to one another in the same person without acting upon each other in any way.<sup>10</sup> But this view is not more likely to be true merely because processes are not the kind of things which can interact. Demonstrating the conceptual error in Process-Interactionism does not thereby establish the existence of such distinct processes occurring parallel to one another. It only proves that *if* such distinct mental processes exist, they do not interact with physical brain processes. If they do exist, furthermore, they must be processes of some part of the human body which does *not* interact with the part carrying out the physical brain process—at least at that moment in time. And again the problem of how and where to locate the part of the brain carrying out the allegedly distinct mental processes seems insurmountable.

The way out of this impasse is to reject the common premise of Interactionism and Parallelism: that there is any such thing as a mental process, distinct from any and all physical bodily processes, or a mind distinct from the body. This is the central point of the Dual-Aspect theory: a mental process and the physical brain process correlated with it are one and the same

brain process, as viewed from different cognitive perspectives; i.e., the mental and the physical are but two distinct *aspects* of one and the same process, as viewed through two different cognitive modes.

Despite their common rejection of the claim that there are actually two distinct entities, organs or processes involved in the mind-body relationship, Dual-Aspect theories differ considerably as to *which* aspects (of an entity, organ or process) share the duality. In the section which follows, a clear distinction will be made between the version of the Dual-Aspect theory this paper supports and earlier, more vulnerable forms of that theory.

## II. THE DUAL-ASPECT THEORY

The simplest version of this theory maintains that mind and body are not two distinct entities, as Cartesians claim, but rather two aspects of one underlying entity, the human organism, or human being.<sup>11</sup> A second, similar version holds that mind and brain are two aspects of one and the same organ of a human being.<sup>12</sup>

Both the mind-body and mind-brain Dual-Aspect theories, however, are open to the same objection. What evidence is there for the existence of this mysterious "underlying" organism or organ? Merely postulating its existence in order to provide its attributes with a metaphysical "foundation" is insufficient. If we are not directly aware of this organism or organ, but merely of its "aspects" (the mind and body, or brain), and cannot prove that it exists, then we have no logical right to assert that it exists.<sup>13</sup>

Such a dilemma is fostered by the ontological and epistemological pre-suppositions of Locke's representative realist theory of knowledge. With the medievals and the naive realists, Locke held the position that an entity is a unitary, unknowable substance, external to and supporting its various qualities. This assumption that an entity must be *ontologically* simple in its nature was built upon an illicit interpretation of observations about the *logically* simple subject of which many different properties were predicated.<sup>14</sup>

The error was to hypostatize this logical relation between a unitary subject and its many predicates, and thus to assume that the epistemological distinction between an entity and its properties was actually an ontological distinction between a unitary, simple entity and its numerous properties.<sup>15</sup> The direct unknowability of such a unitary, simple entity follows once it is pointed out that no such simple-natured entity is presented to our perception: if it exists and "supports" its properties, it must be external to them and beyond the range of our direct awareness.

Thus, because of a confusion between language and logic on the one hand and reality on the other, Locke is led to assert his representative realist theory: we are not directly aware of entities in the external world; we are only directly aware of their aspects or qualities which we apprehend as mental contents or 'ideas'. To gain knowledge of the external world, Locke maintained, it was necessary to proceed by inference from one's 'ideas' to their unseen sources.

Berkeley's idealism is thus not so radical a departure from Locke's position as it might appear. Idealism accepts the Lockean premise of our having direct awareness only of 'ideas' and of the necessity of inferring the external world's existence from those 'ideas'. It merely denies the *possibility* of such an inference and, consequently, the existence of an external world.

Hume's skeptical position grants that we *are* directly aware of the external world, in opposition to both Locke and Berkeley. He placed external reality not in entities, however, but in aspects or qualities, which somehow "bundle" together to form the material objects we encounter. Hume viewed entities in the same way Berkeley viewed the external world: as unnecessary, unjustified, unjustifiable notions. We are directly aware only of aspects, not entities, Hume says; and since inferring the existence of entities from their aspects is impossible, entities do not exist.

This "bundle" theory of things in the world has application to the mind-body problem, too, particularly to the versions of the Dual-Aspect theory now under scrutiny. To repeat (and Hume and Berkeley would probably concur): if we are not *directly* aware of this organism or organ, but merely of its

“aspects” (the mind and body, or brain), and cannot prove that it exists, then we have no logical right to assert that it exists. But now, with Hume, we face a fundamental mystery: how do the mind and body manage to cohere in a “bundle”, if there is not some entity tying them together, so to speak, of which they are both aspects?

The way out of this blind alley is to reject the premise shared by Locke, Berkeley, Hume, the Dual-Aspect theories just discussed, and many of the key figures in modern philosophy: the assumption that we are not directly aware of the organism and organ “underlying” the mind, body and brain. Quite the contrary, *we are directly aware of the organism and the organ*: the organism is the human body with all its processes and other aspects, including the mind; the organ is the human brain with all its processes and other aspects, including the mind.

One is no longer compelled, as Locke, to claim the existence of an invisible, mysterious, directly unknowable organism or organ, in order to satisfy his metaphysical bias as a realist, who holds that entities are in some sense the primary existents. Nor is one saddled with the form of direct realism known as “naive realism,” which fails to account for the physical and physiological processes mediating between the known object and the knowing subject, and which fails to distinguish between object and content of cognition.

There is a third alternative, which is neither the indirect, intuitive apprehension of a copy of external reality (as held by representative realism), nor the direct, intuitive apprehension of external reality itself (as held by naive realism). Instead of these, we must use as the basis for the Dual-Aspect theory *the direct, referential awareness of Critical Realism*. To quote Roy W. Sellars, an outstanding proponent of this form of realism: “Knowledge should not claim to *be* being, nor *like* being. It is *of* being and reflects being”.<sup>16</sup>

That is, our cognitive contents should neither be confused with the objects of cognition, nor should they be regarded necessarily as being copies of the objects of cognition. Instead they should merely be regarded as having been causally generated from the object of cognition, and thus bearing some discoverable correlation to that object, a correlation which

permits us with sufficient justification to cognitively *identify* the contents with the object of cognition.<sup>17</sup> With such an epistemological foundation, we can proceed beyond these more naive forms of Dual-Aspect theory.

A problem arises, however. If we accept the view of the mind as an aspect of the brain (and of the body), the simple *dual*-aspect view being considered has dissolved, leaving only a single aspect, the mind. We now must find some other aspect to pair with the mind, if we are to formulate a Dual-Aspect theory involving the mind as one of *two* aspects. There is such an aspect and such a theory, but they can be discussed more coherently after first considering individual processes.<sup>18</sup>

In this context, consider the solution to the apparent impasse at which we arrived in the previous section. This Dual-Aspect theory holds that a so-called mental process, and the physical process of the brain with which it is intimately associated, are not two distinct processes, but rather are two aspects of one and the same brain process. The two aspects of that brain process are the mental aspect and the *physical* (electro-chemical) aspect.

Such a formulation avoids the error of many of the Identity theorists,<sup>19</sup> whereby the two aspects held to be identical are the mental process and the *brain* process, a view which entails the same difficulties as the previously discussed Dual-Aspect theories. How do we know that there is a single, underlying process? The process in question is in fact the brain process, so it cannot be one of the aspects.

We are aware of the brain process extrospectively when we view its physical aspects scientifically, and we sometimes equate it with those aspects. But the term "brain process" contains different information from the term "physical process of the brain".

The former refers to a process in terms of the *part of the entity* which carries it out, while the latter refers to a process carried out by that entity in terms of the *kind of process* being carried out. Thus, it is the term "physical process of the brain" (or "*physical brain process*") which is properly paired with the term "mental process" (or "*mental brain process*").

It is true that we are unable to view the mental aspect of

brain processes by extrospection, just as we are unable to grasp the physical aspect of brain processes introspectively. We shall never be able to do these things, any more than we could ever see the length of a table with our hands, or feel the length of a table with our eyes.

Yet, just as a child identifies seen length with felt length, through a combination of evidence and (at least implicit) reasoning, so too does the Dual-Aspect theory propose that we identify mental processes and physical brain processes (though by a more explicit reasoning process). The common factor here is the presence of *data which are correlated across different cognitive modes, and the decision to economize by regarding the data as coming from a single source.*

A good question to ponder at this juncture is this: If a child's seen-and-felt length identification is so similar to our introspected-and-extrospected brain process identification, then why has the latter identification taken so long to suggest itself, and even then, to adults, not children?

The answer appears to lie in the location of our cognitive organs, and the practical importance in obtaining correlated information from them. The sensory organs being located on the periphery of our nervous system, provide us our first cognitive contact with reality. They are of crucial importance in our learning how to deal discriminatively with the world in our locomotion of body or limbs (to run, to grasp, etc.). From a very early age, the coordination of these senses is simply vital.

On the other hand, even though men have for ages utilized their organs of conceptual extrospection and, to a lesser degree, introspection (which we may reasonably presume to be certain parts of the brain), the study of the physical processes of the brain has begun only recently in history. For only recently have the religious taboos and the inadequate conceptual and technological developments in psychology been successfully overcome to permit the inauguration of such studies. Furthermore, once the study of these processes did get under way, along with the study of the introspective reports of mental processes, it was for highly specialized purposes (medical, neurophysiological, etc.), which to this point at least have been held to be of far less than universal practical importance to men.

It is these special circumstances which suggest that only within the past century or less has the possibility of a mental-physical Dual-Aspect theory, and the *ontological parsimony* it provides, seemed a scientifically and philosophically tenable alternative to the traditional Interactionist and reductionist theories. The fact that the Dual-Aspect theory is a genuine alternative to reductionism, however, needs further clarification.

### III. THE NON-REDUCTIVE STATUS OF THE DUAL-ASPECT THEORY

There are a number of interesting consequences following from the acceptance of the Dual-Aspect Theory. Conclusions which once seemed absurd or wrongheaded now take on a new light, in view of the thesis that a mental process and a physical brain process are actually both merely aspects of one brain process.

One such conclusion is that *a mental process is actually a physical process*. That is, since the term "mental process" actually refers to a mental brain process also possessing physical (electrochemical) aspects, a mental process is also properly referable to as a "physical brain process".

A number of philosophers have rejected this conclusion in the past, for it was previously associated with a position referred to as "reductive materialism". As did the Dual-Aspect theorists, the reductive materialists maintained that a mental process is actually a physical brain process; but here the resemblance between reductionism and the Dual-Aspect theory ends.

The reductive materialists seek above all to deny the reality of anything other than "matter" (material entities) and actions and interrelationships thereof. As such, they maintain that spiritual or mental phenomena do not really exist, that they are illusory, mere appearance, a distortion, etc.; and that what *appears* to be a mental phenomeon is *really nothing but* a physical phenomeon. They seek to strip away the illusory, to shrink or *reduce* our view of reality so that it excludes the realm of mental or spiritual "appearances".<sup>20</sup>

As a logical corollary, the reductionists also seem to obliterate the distinction between different species of physical brain

processes. Since there is no real basis upon which to distinguish certain brain processes from other brain processes (except the "unreal appearance" of their being "mental"), the reductionists have *reduced* the number of conceptual classifications we must retain when thinking about brain processes. They have said there is not really a separate group of brain processes which we call "mental processes". We are mistaken if we fail to realize that they are *really nothing but* brain processes.<sup>21</sup>

In neither of these senses is the Dual-Aspect theory guilty of reductionism. Like other anti-reductionists, the Dual-Aspect theorists maintain that mental phenomena are *real*, and that there is no illusion or "mere appearance" involved. And they also share the belief that mental processes are a special subcategory of natural processes, distinguishable from all others by some valid (reality-derived) criteria. In short, they agree that mental processes are not simply *nothing but* physical processes. But here again is where the similarity ends.

First, the Dual-Aspect theory holds that mental processes are actually certain physical brain processes *as we are aware of them introspectively*, i.e., that "mental" refers to the fully real, introspectable *aspects* of those particular physical brain processes. Our awareness of them is the form in which we are aware of certain brain processes introspectively, just as our awareness of the physical aspects is the form in which we are aware of those brain processes extrospectively.

It has been the error of reductionists to grant a cognitive monopoly to extrospection. In correcting this error, we must realize that one must be aware of reality (viz., brain processes) in *some* form, but may be aware of reality in *any* form (and not just some one particular form exclusively).<sup>22</sup> Just as both visual perception and tactual perception are different but equally valid forms for apprehending real aspects of entities (such as their length), which can be correlated with one another, so too the Dual-Aspect theory maintains, are extrospection and introspection different but equally valid forms for apprehending real aspects of brain processes.

Secondly, the Dual-Aspect theory holds that mental processes are actually *mental* physical brain processes. As such they are not merely *nothing but* physical brain processes, but rather

physical brain processes of a certain special *kind*, distinguished from all other physical brain processes by virtue of their introspectable, mental aspect. Since this mental aspect is a *real* aspect of those brain processes, it provides a *valid* basis for making the distinction, a basis derived from reality.

Thus, it is that the Dual-Aspect theory avoids the stigma of reductionism. Even as it insists that mental processes are actually physical processes, it equally steadfastly denies that they are *nothing but* physical processes. The Dual-Aspect theory is thus basically opposed not only to traditional anti-reductionist alternatives, but to reductionism as well.

In pushing the claim, however, that mental and physical brain processes are identical (i.e., one and the same brain process), Dual-Aspect theorists (and Identity theorists) have invited attacks which point out that the equation of perception or thought with the brain activity accompanying them is unempirical and illogical.<sup>23</sup>

In response to such attacks, this much must be granted: it is unempirical and illogical to equate the mental and physical *aspects* of a given brain process, to say that they are *one and the same aspect of that brain process*. But the Dual-Aspect theory does not do this. It says merely that a mental process and an electrochemical brain process, however different they may *appear*, are actually *one and the same process*.

The reason why a single process can be presented to our awareness in two forms so radically different is provided by the Dual-Aspect theory. In the one case, we see its mental aspect, because we are apprehending it through introspection; and in the other case, we see its physical aspect, because we are apprehending it extrospectively.<sup>24</sup> Since, however, the mental process and the physical process are the same process, and in that sense are identical, we are aware of the same unique process in both cases.

What we are actually saying is that *a given brain process*, which happens to be both physical and mental in character, *is itself*. This is far from a failure to recognize the basic *difference* between the two *aspects* of that brain process' identity.

As for the relationship between a mental process and a *brain* process, they too may well be one and the same process. That is, there is no absurdity in identifying them, any more than in

saying that a given moving physical entity and a given physical entity are identical. Here, as before, we are merely seeking to affirm the fact that when we apprehend the process' (or entity's) identity, we are apprehending the process (or entity) itself.

People who reject the identity of mental processes with physical brain processes often do so because such a Dual-Aspect or Identity theory seems to entail reductive materialism. Admittedly, such materialists do maintain some sort of Dual-Aspect or Identity theory, but that is not the essential part of their theory. The component of reductive materialism distinguishing it from the Dual-Aspect theory is its view that anything other than physical aspects of reality is *unreal*, particularly, mental aspects. This, together with the consequent rejection of introspection as a valid means of knowing reality, is its essential characteristic.

Thus it is not necessary to deny the identity of mental processes and physical brain processes in order to reject the reductive materialist hypothesis. All one need do is reject the view of the physical as the sole reality, and the view of introspection as a distorting noncognitive form of awareness. This is precisely what the Dual-Aspect theory does.

If the Dual-Aspect theory is clearly a non-reductionist theory, however, it is still far from clear in light of earlier remarks whether a view of man as a non-deterministic free agent can be consistent with it. The remaining two sections will deal with objections to and implications of the fact that mind and mental processes lack the causal efficacy often ascribed to them by those maintaining a doctrine of freedom of the will.

#### IV. THE CAUSAL INEFFICACY OF MIND

The non-Humean conception of causation developed earlier in this paper provides a clear justification for maintaining that mental processes and mind have no causal efficacy. Even if mental processes and mind actually were processes and process-complexes *distinct from* physical brain processes and complexes of such processes, *they could not cause physical brain processes, any more than physical brain processes could cause them.*

The only causal agent involved is the human organism—

specifically, its organ, the brain—more specifically, those parts of the brain which interact, engaging in processes, some of which have conscious or mental aspects. Only entities, or parts thereof, may be said to cause actions or processes. And mental processes (i.e., mental brain processes) and “mind” (the complex of mental brain processes, as viewed introspectively) are simply *not* entities.

But if, in fact, the Dual-Aspect theory is correct, mental processes and mind are *not* processes and process-complexes *at all*, distinct from the physical brain processes and complexes of such processes. They instead are one and the same as the physical processes and process-complexes. They *are* those physical processes and process-complexes as known introspectively; our awareness of them is our awareness of the *mental aspect* of those physical processes and process-complexes.

How, then, shall we understand the seeming causal interaction between mental processes and other brain processes *below* the level of conscious awareness? Simply by recognizing that various parts of the brain carry out processes by which they interact with each other. One part of the brain, carrying out a process which may or may not be of sufficient complexity and/or intensity to possess a mental aspect, causes another part of the brain to carry out a process, which itself may or may not possess a mental aspect.

Thus, it is not the conscious or mental aspect of any such brain processes which causes other brain processes, or vice versa. It is the various parts of the brain carrying out processes possessing those aspects, which are the causal agents. (Similar remarks can be made regarding what seem to be mind-body interactions.)

This causal inefficacy of mental processes and of mind has led many people to protest in the following manner: What if consciousness (or mind) never existed? How could you claim human history would have been the same without consciousness or mind? How can you claim that consciousness has no role to play in the course of human events?<sup>25</sup>

The error in such an objection is what I call the “what if” fallacy, or the fallacy of “logical possibility”. Its proponents ask us to *imagine* what a phenomeon would be like without

certain of its attributes.<sup>26</sup> The reply is that there simply is no *evidence* that it is possible for conscious-level brain processes to exist without the attribute of consciousness.

Brain processes and their attribute of consciousness are metaphysically inseparable. Consciousness is a necessary aspect of brain processes at a sufficiently high level of complexity and/or intensity. It can no more exist apart from those processes than can the color, mass, or volume of the human body, or the incandescence of an iron rod of certain high temperature;<sup>27</sup> nor can those brain processes exist apart from consciousness.

Thus, to speculate on how such brain processes might proceed without the attribute of consciousness is an exercise in futility. Consciousness is a natural, necessary attribute of those brain processes at or above that particular level. Those brain processes would not be those brain processes, were they not also possessed of their attribute of consciousness. Had consciousness never existed, it would be because brain processes of a sufficiently high level of complexity and intensity had never existed—otherwise, consciousness would *have* to have existed.

Without consciousness, human history could *not* have been the same, simply because humans would not have been able to carry out brain processes of a sufficiently high level to direct actions we would characterize as “human” (let alone, as “animal”). But the course of human events is not directed by consciousness *per se*. It is directed by *conscious human beings*, i.e., by human beings whose brains engage in processes possessing the attribute of consciousness.

Thus it is that consciousness (or mental processes) and mind are causally inefficacious. Moreover, they are *uncaused* as well (except in the derivative respect whereby the brain processes of which they are aspects, are themselves caused). What remains to be established, though, is whether man, whose mind is impotent with regard to his actions, can be said, in any meaningful sense, to be “free”.

#### V. MIND, SELF, WILL AND “FREEDOM”

We have established that the mind, considered as *activity* or process, is not a set of mental processes distinct from a set of

accompanying physical brain processes. Instead, it is that set of physical brain processes, as viewed introspectively.

From the standpoint not of activity, but of *capacity* to act, we also employ the term "mind" in common parlance, as if it were a capacity distinct from the capacity of the brain to carry out its processes. But the mind, qua mental capacity is merely the capacity of the brain to carry out *mental brain processes*. As such, it is one and the same as the brain's capacity for carrying out physical brain processes of a sufficiently high degree of complexity and/or intensity that they take on a mental aspect.

The *direct experience* of the brain's capacity to carry out mental brain processes is the awareness of one's *ego*. That is, one's ego is one's capacity to carry out mental processes, as viewed introspectively. One is aware of a feeling that one *can* carry out certain mental brain processes.

From such direct, introspective data—the awareness of one's ego—one eventually *infers conceptually* that there is a persisting, abiding capacity of the organism to carry out such mental processes. This inference is how one arrives at the concept of *mind qua capacity*.

Entailed by the awareness of the ego, moreover, is the awareness of *self*—i.e., of one's self. The concept of 'self' *per se* does not necessarily imply a self-conscious being. It merely implies a being which is the *object* of some action which that same being has taken.

When the action is introspection, a mental brain process which is cognitively directed toward another mental brain process in the same organism, then that organism is being *aware of* its self. It is aware that, as an organism, it is introspectively viewing *that same organism* while it is carrying out another mental brain process.

So self is not some mysterious personalizing accompaniment of the human organism. It is the human organism, considered insofar as it is both the agent and the object of some action. Self-awareness (awareness by an organism of that same organism) occurs when that action is introspection.

One's conscious self is the human organism which one is, considered insofar as it is both the agent and object of consciousness (mental brain processes). Thus, one's ego is to one's

conscious self as a human organism's mental capacities are to that organism—namely, in a relation of capacity to organism, known directly in the former instance, and inferentially in the latter.

Like the ego, the will also exists in a specific relation to one's conscious self, and more generally to oneself as a conscious, minded organism. This can best be seen by considering the nature and cause of human action, in the context of the specific way in which it exemplifies the action-principles common to all living organisms.

Like all living organisms, a human being "... is a complex integrate of hierarchically organized structures and functions ... controlled in part by their own regulators and in part by regulators on higher levels of the hierarchy". In order to remain alive, an organism's component parts must "function in such a way as to preserve the integrity of that structure ...". This functioning is *self-generated*, generated by the organism and its components—not by the outside physical factors impinging upon it.<sup>28</sup>

The continued life—i.e., the continued structural and functional integrity—of the organism, is the principle which is the ultimate regulator and director of the organism's life functions. In other words, an organism's actions are *self-regulated* toward its continued existence.<sup>29</sup>

Thus, life is an attribute of certain entities: the capacity to engage in self-sustaining and self-generated (and regulated) activity—activity which *results in* the continuance of the structural-functional integrity of those entities, and which is *caused by* those entities (and directed toward that end).

A distinction is implicit here between the capacity to act so that a certain goal is achieved, and the capacity to direct that action, monitoring it and correcting for deviation from (or obstacles to) the goal of that action. These capacities for self-generated and self-regulated action are not, however, separate capacities for separate types of action, but rather two analytically distinguishable aspects of one and the same capacity and action. (This in turn indicates how the nature of the will is to be characterized shortly).

The higher the complexity of the function carried out, the

higher the complexity of structure needed to carry it out, in order that all the subunits required to participate in the function have the necessary regulation. A network to carry signals to "trigger" activities on lower levels and to "monitor" data from those lower levels, a network including the brain and nervous system, is needed. The higher the level of complexity and/or intensity of brain processes involved in organismic activity, the more likely that they will take on a mental, or conscious aspect.<sup>30</sup>

At the perceptual level of consciousness, one is aware of alternatives on the range-of-the-moment, but one is bound by one's pleasure-pain mechanism in the selection from among those alternatives. At the conceptual level, though, one is aware of long-range as well as short-range alternatives and their consequences. One is able to deliberate on the merits of the various alternatives beyond just the immediate pleasure or pain they yield, and to make one's choice on such a basis.

One is also aware that one has the power or capacity to make such a deliberative (rather than merely appetitive) choice. One is aware of a feeling that one can regulate certain brain processes—i.e., make a *choice* of which action to take. This *direct experience* of the brain's capacity to regulate mental brain processes, and related bodily actions, is referred to as one's *will*.

One will, then, is one's capacity to regulate one's mental processes viewed introspectively. *One's will is the regulative aspect of one's ego*. The awareness of one's ego is inseparable from the awareness of one's will. For every consciously directed action which a man is actually capable of taking, he implicitly or explicitly is aware that "I *can* do this, if I *want* to (will to)".

From such direct, introspective data (the awareness of one's will), one eventually *infers conceptually* that there is a persisting, abiding capacity of one's organism to regulate its mental processes. This is how one arrives at the concept of *volition* (qua capacity). *Volition is the regulative aspect of mind*.

It was noted above that one's ego was to one's conscious self as mind was to a "minded" organism—the relation being *capacity to organism* (as known directly and by inference, respectively). The same is true from the standpoint of the regulative concepts just discussed. One's will is to the conscious, willing self as volition is to a volitionally "minded" organism.

From this the relation of the will to other aspects of the mental realm is clear enough. But what bearing does this have upon the problem of free will? Does it conclusively prove or disprove free will? What, in fact, can it mean for a man's will to be "free"?

The doctrine of free will maintains that man is capable of himself causing certain actions, no antecedent conditions being sufficient for his causing just that action. What this means is that man's will allows him to cause certain actions (or make certain choices) without anything else external or internal causing him to do so.<sup>31</sup>

"Free will", thus formulated, appears to be simply the principle present in all living organisms—namely, the principle of self-generated (self-caused) actions—as found on the level of self-conscious human beings. All living organisms are self-determining and in this sense are "free"; but only man has a will, so only man's self-determination may properly be referred to as the possessing of "free will."

The difference between man and the lower animals is *not* that man alone is self-determining. All living beings are self-determining; i.e., all living beings generate their own actions themselves. Man's distinction in this respect is that he is self-determining *psychologically*.<sup>32</sup>

Man has the ability, by virtue of his capacity for self-awareness (introspection), to integrate his consciousness into the top of his organismic hierarchy, allowing it to be more than just an *automatic* system of signals of danger and safety, pain and well-being, etc. With the awareness of future consequences and alternatives, and the awareness that he is a being who can weigh the alternatives and choose the one he thinks best, a man's consciousness becomes subject to his control. He is able to use it actively, instead of automatically responding to its data.

It may be asked whether there is in fact some antecedent condition causing a man to choose to direct his consciousness rather than abandon the controls. This is tantamount to suggesting that perhaps man, and all other living organisms do not choose or select their actions at all, perhaps instead they are merely manipulated in ways too subtle to detect by the casual observer. What is being questioned here is essentially whether

there really is any form of causation operative in living organisms other than action-reaction, mechanistic causation.

Physics has long ago rejected the "closed system" view of living organisms, in favor of an "open system" view, where the organism has a natural tendency to build up greater and greater levels of complexity in its structure and function, and to maintain the integrity of structure and function thus achieved.<sup>33</sup> This integrative tendency, directing the actions of the organism, would seem to be the basic physical paradigm for not efficient causation, but *final causation*, or goal-directedness, which is *organism-centered and directed*.

Thus, upon the currently available psychological, biological and physical evidence, it would seem that man's free will, his capacity to direct his actions as an organism (especially his conscious actions), is a fact. It certainly cannot be dismissed so easily as some are willing and anxious to do.

Most importantly, in this context, man's freedom of will is thoroughly compatible with the Dual-Aspect theory of mind. It is not the mind, nor the will, which chooses man's actions. These are merely man's capacity to act mentally and to choose those actions. The cause of man's actions, according to the Dual-Aspect theory, is *man*, as a minded, willing organism.

<sup>1</sup> See for instance Wolfgang Kohler, "The Mind-Body Problem," *Dimensions of Mind*, ed. Sidney Hook (New York: Collier Books, 1960), p. 15.

<sup>2</sup> This epistemological error is discussed in more detail in R. E. Bissell, "Entities as 'Primary Existents,'" unpublished.

<sup>3</sup> Excellent discussions of this theory may be found in Paul Edwards and Arthur Pap (eds.), *A Modern Introduction to Philosophy* (Rev. ed; New York: The Free Press, 1965), p. 179; Robert Efron, "Biology Without Consciousness—And Its Consequences," *Perspectives in Biology and Medicine*, II, 1 (Autumn 1967), p. 15.

<sup>4</sup> This argument is made in John Hospers, *Introduction to Philosophical Analysis* (Englewood Cliffs, NJ: Prentice Hall, Inc., 1953), pp. 397-398.

<sup>5</sup> An interesting non-Humean variant of this view may be found in Robert Efron, "The Measurement of Perceptual Durations," *Studium Generale*, XXIII (1970), p. 552; and Efron, "Biology. . .", p. 16.

<sup>6</sup> For critiques of this Humean conception of causality, see Wilhelm Windelband, *A History of Philosophy* (New York: Harper Torchbooks, 1958), II,

p. 410; Richard Taylor, *Action and Purpose* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1966), p. 16; Edward H. Madden and Rom Harre, "In Defence of Natural Agents," *Philosophical Quarterly*, XXIII, 91 (Ap. 1973), p. 117; Milton Fisk, *Nature and Necessity* (Bloomington, IN: University of Indiana Press, 1973), pp. 257-270.

<sup>7</sup> This principle is developed in detail in H. W. B. Joseph, *An Introduction to Logic* (New York: Oxford University Press, 1957), pp. 400-425; Fisk, *ibid.*, pp. 257-270; Madden and Harre, *ibid.*, p. 117; Madden, "A Third View of Causality," *Review of Metaphysics*, XXIII, 1 (Sept. 1969), pp. 67-84.

<sup>8</sup> For a similar argument see G. E. Moore, "Are the Characteristics of Things Universal or Particular?", *Proceedings of the Aristotelian Society*, Suppl. III, 1923, pp. 95-113.

<sup>9</sup> Work in this area by Kohler, E. D. Adrian, W. Penfield, D. O. Hebb, W. S. McCullough and others is cited by Herbert Feigl, "Mind-Body, Not a Pseudo-Problem," *Dimensions of Mind*, p. 35.

<sup>10</sup> See Hospers, pp. 394-397.

<sup>11</sup> This view is to be found in Spinoza, *Ethica*, ii. Spinoza is cited by some Identity theorists as an early proponent of their position; they regard the Dual-Aspect theory as a variant of the Identity theory (as does Hospers, p. 398). See C. V. Borst (ed), *The Mind Brain Identity Theory* (London: Macmillan, 1970).

<sup>12</sup> Borst, *ibid.*

<sup>13</sup> Criticisms of this sort can be found in Hospers, p. 398; Elmer Sprague, "The Mind-Body Problem," *Dimensions of Mind*, p. 72; Feigl, "The 'Mental' and the 'Physical.'" in H. Feigl, G. Maxwell and M. Scriven (eds.), *Concepts, Theories, and the Mind-Body Problem* (Minnesota Studies in the Philosophy of Science, Vol. II; Minneapolis: University of Minnesota Press, 1957), pp. 370-497.

<sup>14</sup> The foundations of Lockean realism are criticized in this manner by Roy Wood Sellars, *Evolutionary Naturalism* (New York: Russell & Russell, 1922), p. 138.

<sup>15</sup> *Ibid.*, p. 141.

<sup>16</sup> For an excellent discussion of Critical Realism see Sellars, "Direct, Referential Realism," *Dialogue*, II (1963), pp. 135-143.

<sup>17</sup> *Ibid.*

<sup>18</sup> See section IV of this paper.

<sup>19</sup> This unfortunate way of designating the two aspects is exemplified by J. J. C. Smart, "Sensations and Brain Processes," *The Philosophical Review*, LXVIII, 2 (1959), pp. 141-156; and U. T. Place, "Is Consciousness a Brain Process," *British Journal of Psychology*, XLVII (1956), pp. 44-50.

<sup>20</sup> This side of reductionism is focused on by such critics as John Herman Randall, Jr. and Justus Buchler, *Philosophy: An Introduction* (New York: Barnes & Noble, Inc., 1942), pp. 198-199.

<sup>21</sup> This reductionist fallacy is the target of Arthur Koestler, J. R. Smythies, *et al.*, in *Beyond Reductionism* (Boston: Beacon Press, 1971).

<sup>22</sup> This formulation of the Aristotelian-Objectivist conception of awareness

was suggested to me by the principle of concept-formation—"that the omitted measurements must exist in *some* quantity, but may exist in *any* quantity"—enunciated in Ayn Rand, *Introduction to Objectivist Epistemology* (New York: The Objectivist, Inc., 1967), p. 21. For similar employment of this some/any principle, see Panayot Butchvarov, *Resemblance and Identity* (Bloomington, IN: Indiana University Press, 1966), pp. 34, 84, 90, 163-164, 166; and Douglas Rasmussen, "Aristotle and the Defense of the Law of Contradiction," *Personalist*, LIV, 2 (Spr. 1973), pp. 149-162.

<sup>23</sup> Classic presentations of this argument are found in James B. Pratt, *Matter and Spirit* (New York: Macmillan, 1922), pp. 11-12; and Brand Blanshard, *The Nature of Thought* (New York: Macmillan, 1939), pp. 336-337.

<sup>24</sup> This mind-brain view is defended well by Stephen C. Pepper, "A Neural Identity Theory of Mind," *Dimensions of Mind*, pp. 45-60.

<sup>25</sup> Such criticisms are made by Hospers, pp. 397-398; and Joseph, p. 383.

<sup>26</sup> See the discussion of this fallacy by Tibor R. Machan, "Another Look at 'Logical Possibility,'" *Personalist*, LI, 2 (Spr. 1970), pp. 246-249.

<sup>27</sup> Such an analogy is presented by Susanne K. Langer, *Mind: An Essay in Human Feeling* (Vol. I; Baltimore: John Hopkins Press, 1967), p. 21.

<sup>28</sup> This conception of life is presented in illuminating fashion by Nathaniel Branden, *The Psychology of Self-Esteem* (Los Angeles: Nash Pub. Corp., 1969), pp. 16, 39. For a discussion of the physical basis for self-generated, self-sustaining activity see Koestler, *The Ghost in the Machine* (New York: Macmillan 1967), pp. 197-200; and Ludwig von Bertalanffy, *Robots, Men and Minds* (New York: George Braziller, Inc., 1967), pp. 73-77; and Langer, pp. 21-30.

<sup>29</sup> Branden, *ibid.*, pp. 37-39.

<sup>30</sup> See Koestler, *The Ghost. . .*, esp. pp. 205-211; and Langer, p. 21. Also see Roger W. Sperry, "Mind, Brain and Humanist Values," *New Views of the Nature of Man*, ed. John R. Platt (Chicago: University of Chicago Press, 1965), pp. 79-82.

<sup>31</sup> This formulation of the doctrine of "free will" or agency is to be found in Richard Taylor, *Metaphysics* (Englewood Cliffs, NJ: Prentice Hall, 1963), pp. 50-53.

<sup>32</sup> Branden, pp. 59, 43; and Sperry, pp. 86-87. I use the term "self-determining" rather than "free" even though they mean the same in this context, in order to avoid and to reveal the misleading association of "freedom" solely with human beings. It is the introspective awareness of one's being psychologically self-determining which we usually refer to as our experience of being "free." (See Koestler, *The Ghost. . .*, p. 216.) That is, only in his being *consciously free* is man free in a form different from that of other living organisms—as is his being a self unique only in that he is a conscious self, i.e., a *self-conscious* self. In the broader biological sense, all living beings are free and are selves.

<sup>33</sup> Koestler, *ibid.*, pp. 197-200.