

## CHAPTER 1

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# First Prolegomenon: The Phenomenon of Mind

*All things were originally together until Mind came and set them in order.*  
Anaxagoras

### § 1. Common Views of the Mind

What is a mind? We are each certain that we have one, and most of us would claim to know what we mean when we speak of it. Yet when scholars have attempted to elucidate what is meant by this term, a surprising diversity of different opinions and theories have emerged. Some hold that the mind is one of many phenomena of nature and, as such, should be amenable to scientific study. Others hold a mystical or a religious view of what is meant by mind and place this phenomenon outside of the proper territory claimed by science. Can there be a science of the mind? If so, what are the proper objects of this science and what are the limits to the knowledge gained through such a science? These are questions we must explore in this treatise.

Among the diversity of views on the mind, there are some common threads. The first of these is the phenomenon of *thinking*. While the nature of thought and thinking has been a subject of dispute, no one doubts that thinking is an attribute of the phenomenon of mind. If there were no evidence of thinking in the world, the term ‘mind’ would have little or no meaning. Another idea common to all concepts of mind is that of *knowledge* or *knowing*. While each of us again feel that we know what it means to know something, the nature of knowledge and the nature of knowing have been and continue to be subjects of debate. Still, everyone admits the existence of *something* called knowledge and the state of being we call *knowing*.

A third factor readily admitted by everyone is that thinking is capable of being *reflexive*, i.e., thought is able to consider itself. Thoughts and thinking are things we can think *about*. Terms such as ‘self-consciousness’ or ‘self-knowledge’ are sometimes used as, or almost as, synonyms for this reflexive power of mind. It is certainly obvious that if mind did not somehow possess this reflexive property, theories of mind could never arise in the first place.

Finally, another factor common to all concepts of mind is the idea of *purpose* or, if one prefers, *intention*. Purpose or intention refers to the act of planning a course of action with foreknowledge of the goal of this action, or in working in any other way toward a desired and foreseen objective. This phenomenon seems to require something above and in addition to the senses and memory. Senses seem to have an *immediate* nature, existing in the *now*. Memory, on

the other hand, is a term that denotes the recollection of *past* events and experiences. It is difficult to see how even the combination of sense and memory could possibly combine to produce a deliberate and *future*-directed action. Thus, the idea of purpose appears as a common element in all theories of mind, and is sometimes called the power or faculty of *will*. Other terms used as or nearly as synonyms for this attribute are *rational desire* and *intellectual appetite*.

Thinking, knowledge, self-knowledge, and purpose all seem to be factual phenomena common to all theories of mind. In addition to these, there are a number of other terms used by many, but not all, conceptions of mind. These terms include: *reason*; *intellect*; *understanding*; *intelligence*; *consciousness*; *psyche*. In some cases the term *soul* is also considered a topic covered by the concept of mind. Other terms, such as *sense* and *memory*, often seem to occupy a kind of middle ground between the idea of mind and the idea of body. Depending on the viewpoint being espoused, sense and memory have been placed 'in' the idea of body, 'in' the idea of mind, or 'between' these two ideas.

We may call these last nine concepts *popular* topics, considered under the overall concept of mind, in order to denote that these terms are widely used but not held by everyone to be attributes or characteristics of mind. A part of the task that lies before us is to sort through the common and the popular topics of mind and assign them their proper place in relationship to mind.

Also common to the topic of mind are a set of major questions that every theory of mind must either try to address or else justify dismissing as irrelevant to the theory of mind. Among these we find the following.

1. How does mind operate?
2. How does it do whatever it does, and with what intrinsic excellences or defects?
3. What is the relationship of mind to matter, bodily organs, and material conditions?
4. What are the natures and causes of mental illnesses?
5. Is mind a common possession of humans and animals?
6. Are there minds or a mind in existence apart from the whole of corporeal life?

Some of these questions we will make claim to answer in this treatise. Others we will argue should be assigned to intellectual endeavors other than a theory of mental physics.

## § 2. Different Views of the Mind

Although thinking, knowledge, self-knowledge, and purpose seem to be common to all theories of mind, diversity among these theories begins as soon as we try to explain what we mean by these terms. The debate has been going on for some 24 centuries, with a lengthy timeout in Europe

during the Dark Ages (*c.* A.D. 566-1095), and the modern debate is not so far removed from those of the ancient Greeks as one might suppose.

It would serve no purpose in this treatise to attempt to discuss every one of the many views that have been put forth on the subject of mind. Such a protracted discussion, while interesting, would better serve as an essay in history. However, it is worthwhile to look at this diversity with a broad perspective and in terms of its major themes. Fixing our perspective in this manner provides a useful context for the more technical discussion undertaken later in this treatise. In order for a reader to follow a work such as this one, it seems a good idea that he and the author should begin at the same place since otherwise the reader may find himself following a shadow.

It is difficult, and perhaps impossible, to draw a classifying boundary that perfectly separates different schools of thought for a topic such as mind (unless we should draw boundaries around every individual). Some imperfections in attempting to classify diverse views are likely to always exist. Still, we can begin by drawing one boundary that seems to separate three major groups well enough. This is the distinction between the *empirical materialists*, the *scientific materialists*, and everyone else. For want of a better name, and admitting to some philological inaccuracy in this choice of terminology, we will call the ‘everyone else’ group the *mentalist views*.

Of these three groups, the distance between the two brands of materialism is the least. In both cases, determinism (i.e., the view of the universe as governed through laws of cause and effect), empiricism (the view that all we can know about the world comes to us from outside of our minds), and, of course, materialism are common features. The primary distinction between these groups lies in their *methods* rather than their fundamental ontological assumptions. The mentalist views, on the other hand, stand far apart from both brands of materialism at very fundamental levels. Let us examine these three groups in turn.

### § 3. Empirical Materialism

I use the term empirical materialism to refer to either of two very similar philosophies, namely, that of the Epicureans, as represented by Epicurus (341-270 B.C.) and Lucretius (97-55 B.C.), and that of Thomas Hobbes (A.D. 1588-1679). The Epicurean philosophy is expounded by Lucretius in his *On the Nature of Things* [LUCR]. An overview of Hobbes’ philosophy is given in the first part of his *Leviathon* [HOBB].

In both views it is held that the mind is part of the body, and for the Epicureans mind is also part of the soul. However, the idea of the ‘soul’ is very different for these philosophers than it is for, say, a Christian theologian. For the empirical materialist, everything that exists is composed of ‘atoms’, i.e., fundamental corpuscles that cannot be subdivided and which provide the ‘stuff’ of which the universe is made. Since the atoms must exist somewhere, and since they cannot be

created or destroyed or altered in any way, along with the atoms exists the *void*, empty space which provides a place for the atoms to exist in. These ideas are borrowed from the pre-Socratic Greek philosopher Democritus (c. 460-357 B.C.). For the empirical materialists, as for Democritus, “there are only the atoms and the void; all else is mere opinion.”

Since the only things that exist are atoms, the soul must be a corporeal entity of some kind, and the mind makes up a part of this entity. Lucretius expresses the view:

First then I say that the mind which we often call the understanding, in which dwells the directing and governing principle of life, is no less part of the man than hand and foot and eyes are part of the whole creature. . . Now I assert that the mind and the soul are kept together in close union and make up a single nature, but that the directing principle which we call mind and understanding, is the head so to speak and reigns paramount in the whole body. . . All the rest of the soul disseminated through the whole body obeys and moves at the will and inclination of the mind [LUCR: 31-32].

Hobbes is satisfied with simply holding that both mind and soul are corporeal. But in both views everything that is known by the mind comes to it empirically through strictly mechanical means. For the Epicureans, this takes place by external things ‘shedding’ part of their atoms, which are subsequently captured by the senses to become ideas. For Hobbes, this transferal comes through *motion* in which the atoms of the external thing exert pressure on the body’s senses. These, in turn, pass their motion on to the mind, where it becomes ‘imprinted.’ For Hobbes,

The cause of sense is the external body, or object, which presseth the organ proper to each sense, either immediately, as in the taste and touch; or mediately, as in seeing, hearing, and smelling: which pressure, by the mediation of nerves and other strings and membranes of the body, continue inwards to the brain and heart, causeth there a resistance, or counter-pressure . . . which endeavor, because outward, seemeth to be some matter without. And this seeming, or fancy, is that which men call *sense*. . .

When a body is once in motion, it moveth (unless something else hinder it) eternally; and whatsoever hindereth it, cannot in an instant, but in time, and by degrees, quite extinguish it . . . This *decaying sense* . . . we call *imagination*, as I said before. But when we would express the *decay*, and signify that the sense is fading, old, and past, it is called *memory*. So that imagination and memory are but one thing [HOBB: 49-50].

In both of these views of empirical materialism, thinking is closely linked or is identical to speech. Hobbes refers to thinking as *mental discourse*. Such a position, of course, implies that thinking does not take place before the development of speech; hence, infants do not think. That such a supposition is on weak grounds from the view of commonsense becomes clear when we pose the following question: If thinking is mental discourse, and if discourse in general is speech so that infants do not think, how do infants learn to talk in the first place? We will return to this question in the next section, on scientific materialism, when the mental discourse model comes up again.

## § 4. Scientific Materialism

Scientific materialism is the view that the *only* proper method of inquiry is the method of natural science and, furthermore, that the *only* proper objects of inquiry are those recognized by natural science. The term *scientism* is sometimes pejoratively applied to scientific materialism by some of those who do not belong to this camp, perhaps in response to physicist Ernest Rutherford's famous quip, "there is physics and there is stamp-collecting." The feature that separates scientific materialism from the empirical materialism of Hobbes and the Epicureans is its reliance on the use of scientific methods of inquiry, as opposed to the logical discourse dialectics of empirical materialism. Arguments can be flawed, goes the reasoning, while scientifically determined facts speak for themselves.

In many ways scientific materialism is more of an attitude than a coherent philosophy. For this reason, it is difficult to precisely define. However, there are three basic doctrines essential to and characteristic of the viewpoint of scientific materialism. The first of these is denial of supernaturalism. This doctrine holds that whatever happens in the world is never due to the agency of any independent spiritual or mental power. Instead, everything that happens can be explained in terms of what are called the forces of nature and the physical objects on which these forces act. In this doctrine scientific materialism and empirical materialism agree.

The second basic doctrine of scientific materialism makes a positive assertion as to the manner and way in which things happen. In the words of Chapman Cohen this doctrine is, "the belief that the state of the world, or any portion of it, at any given time, is the exact consequence of the distribution and conjunction of the forces preceding that moment." Furthermore, this doctrine holds that no new forces or material factors arise, or at any time have arisen, in the universe, nor that any such factor has ever been introduced from 'outside' the universe. Instead, every new phenomenon consists of nothing other than some rearrangement of existing factors. This last assertion is sometimes called *mechanistic determination*. Again, this doctrine is held by empirical materialism. In point of fact, Hobbes' theory requires the presence of God to act as a first cause in the determined chain of causes and effects; but since Hobbes also holds that God is a material being, and since both Hobbes and the Epicureans hold that we could not have any idea of God (or gods) if the Deity (or deities) did not give off atoms for our senses to receive, God is somehow less supernatural for them than He is for the scientific materialist.

Finally, the third doctrine of scientific materialism is the belief that whatever exists in the universe is ultimately some sort of generalized 'matter.' This term deserves some explanation since matter will come up, in a quite different way, later in this treatise. The man who was most responsible for the term 'matter', as that term is used in a modern physical context, was Aristotle. He used this term to basically mean the stuff that everything is made of; he is also responsible for

coining the term *Enérgeia* (energy) to describe the process by which things are formed out of matter. Later thinkers, particularly in the 19<sup>th</sup> century, specialized the term ‘matter’ to mean nothing other than the *atoms*, which since ancient times were conceptualized as the primitive ‘simple’ things out of which everything else was formed. By the first half of the twentieth century, this term had been returned to a more Aristotelian context following the discovery that ‘matter’ and ‘energy’ were more closely related than 19<sup>th</sup> century science had thought, and that the one could be transformed into the other under suitable conditions. Furthermore, the ‘atoms’ themselves had proven to be divisible. The men most directly responsible for these discoveries, and the subsequent reluctance on the part of the materialist to commit to a definite fixed idea of what ‘matter’ is, were J.J. Thomson, Planck, Einstein, Bohr, De Broglie, Pauli, Heisenberg, Schrödinger, Dirac, and Fermi.

As a prescription for correct investigative procedure, the attitude of scientific materialism is indispensable and is followed by every scientist and engineer. However, *strict* scientific materialism is no longer as universally held in science as it was at its height in the 19<sup>th</sup> century. This distinction bears some explanation. At its zenith, the strict adherence to scientific materialism mandated that no new entities were to be introduced into any theory unless these entities were discovered in the course of physical investigations. New entities (e.g., new particles) could be proposed as possible explanations for physically observed phenomena so long as the theory which proposed them also included the possibility that a method existed by which such proposed entities could be isolated and discovered experimentally. The Pauli neutrino provides one such example of this. Dirac's antimatter provides a second example.

Such a strict interpretation is no longer universal in science. For example, elementary particle physics has proposed such entities as *quarks* which have not been isolated individually but only inferred from other effects. The relatively new science of information theory, which was founded in 1948 by Claude Shannon, has for its object something called *information* that has the interesting twin properties of being measurable yet immaterial. It is information theory that is largely responsible for the tremendous advances seen in recent years in the performance and reliability of communication systems. My point here is this: While every scientist is a *scientific methodologist*, not every scientist today is a *scientific materialist*. Every scientist still maintains the first doctrine of scientific materialism – the exclusion of supernatural explanations from scientific theory – but not every scientist feels strongly compelled to view all of nature from the materialist *tradition* that has come down to us from the ancient Greek atomists.

Now, what has scientific materialism to do with mind? When the attitude of scientific materialism is applied to consider the phenomenon of mind, we find three major themes that have been proposed. In order of our presentation, these are called the *mind dust* theory, the *behaviorist* theory and the *functionalism* theory. What all three have in common is that they represent various

attempts taken under scientific materialism to deal with the famous mind-body problem (also called the problem of the homunculus) raised by the philosophy of Descartes.

#### § 4.1 The Mind Dust Theory

The mind dust theory was one of the first efforts of 19<sup>th</sup> century materialism to put the phenomenon of mind on a materialist footing. This theory is no longer held by any scientist, at least so far as I am aware, but it provides an interesting, if nowadays amusing, look at ultra-strict materialism in its early stages.

Mind dust theory regarded the phenomenon of mind, with all of its manifestations of emotion, rationality, creativity, etc., as a *physical* phenomenon requiring a direct physical explanation. In those days no one knew, from a scientific viewpoint, exactly what an atom was supposed to be, although chemistry had slowly produced a growing body of facts that seemed to support the hypothesis that atoms existed. Beginning with Lavoisier and continuing with Dalton, the atomic theory was supplanting the phlogiston theory of chemistry.

At the same time, Darwin's theory of evolution, published in 1859, was rapidly gaining acceptance among biologists. In its simplest terms, Darwin's theory generally holds that in the evolution of life, the inorganic comes first, then the lowest forms of animal and vegetable life, then forms of life that possess mentality, and, so on until, eventually, we arrive at ourselves [JAME2: 95]. Now, the materialist view demands that all new forms of being come about merely through the rearrangement and redistribution of the original and unchanging matter. No "new nature" may slip in at any point during this process.

However, with the development of *consciousness*, something new *does* seem to enter the picture. Viewed from the materialist perspective, evolution was demanding continuity in the process while materialism was demanding that whatever had happened in passing from unconscious to conscious life, the matter for this must have already been present. The most simple answer to this riddle seemed obvious: *consciousness in some form must have been present in the very origin of things*. Since no one knew what an atom was exactly anyway, it was easy enough to suppose that *atoms of consciousness* must exist among their number. Today this idea seems ridiculous and anything but scientific. However, at the time the evidence did not necessarily rule out the idea of 'awareness atoms' or 'happy atoms' and so on. Although Leibniz cannot be blamed for the origin of the mind dust theory, its proponents were able to call on his theory of 'monads' as a way to think about how 'atoms of consciousness' might actually be real.

Unfortunately, this happy idea has failed to stand up not only to philosophical scrutiny but to scientific scrutiny as well. No one today, at least no scientist today, believes that atoms of joy or love or happiness, etc. exist. The mind dust theory proved to be unexpectedly weak on a number of fronts. Some of these weaknesses and some of the fundamental problems of this theory have

been cataloged by the American psychologist and philosopher, William James [JAME2: 95-119]. James' account of the mind dust theory is lucid, dispassionate, and utterly logical. One of the more interesting things he points out, in connection with the most valiant of the last gasp efforts to salvage the mind dust theory in terms of 'pontifical cells' or 'arch-monads', is that the arguments raised in favor of these sophisticated *quanta* of mind dust are precisely the same arguments in favor of a *Soul* theory of the mind<sup>1</sup>. And so, after much effort, the materialist theory of mind dust has come to an unhappy end by positing for itself the same arguments in favor of the immaterial soul – an ironic and, for the materialist, completely unacceptable consequence.

#### § 4.2 The Behaviorist Theory

At more or less the middle of the materialist spectrum we find the behaviorist theory. The principal proponents of the behaviorist theory were John Broadus Watson (1878-1958), Ivan Pavlov (1849-1936), B.F. Skinner (1904-1990), and Gilbert Ryle (1900-1976). This theory was highly influential in American psychology; it was less widely popular in Europe, where Freud was more influential.

The mind dust theory at least attempted to treat the mind as a real thing in a material world. The behaviorist position is: *mind is not a scientifically valid concept*. That which we call the mind must be viewed scientifically only as manifestations of a complex biological system. All that can be said scientifically about 'mind' is whatever can be observed in and deduced from behavior. Behaviorism is, at best, agnostic about the real existence of mind. If we talk about mind at all, we must regard 'mind terms' only as a kind of convenient terminology for responses to stimuli and reinforcement, logical description of dispositions toward or away from certain behaviors, and so forth.

The primary weakness of this theory is that it confines itself to being merely descriptive, correlative, and analytic. It proved difficult to obtain workable analyses from this theory, mostly because how a person behaves does not seem to depend strongly on one belief or desire but, rather, on an entire network of beliefs and desires. For this reason, the behaviorist theory slowly gave way to the functionalism theory.

#### § 4.3 The Functionalism Theory

The functionalism theory lies more or less at the opposite end of the spectrum from the mind dust theory. Among the ranks of the philosophers, its principal modern founders were Hilary Putnam (*b.* 1926) and Wilfrid Sellars (1912-1989). It is more or less the dominant attitude (if not philosophy) among modern cognitive scientists in the fields of psychology, neuroscience, and that

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<sup>1</sup> The monads-as-mind-dust theorists had forgotten, if they ever knew in the first place, that Leibniz' theory required God in order to explain the problem of how monads could interact with each other.



branch of diverse engineering activities known collectively as cognitive systems (a term which includes artificial intelligence, expert systems, neural networks, and neuro-fuzzy soft computing).

In effect, the attitude of functionalism theory is: *there is no mind*. That which we call mind is an emergent property of a very complex biological system. Commonsense ideas such as ‘free will’ are an illusion and ‘purpose’ or ‘intention’ are really inferences we make as a consequence of observing certain consistent behavior *patterns*. Likewise, ‘rationality’ is a property we infer from behavior patterns that can be judged in a context that make it seem as if the observed being is motivated by rational intentions and desires.

A ‘theory about mind’ therefore consists of analysis *and* deduction, based on observed behavior, which leads to ‘functional’ hypotheses about how to *describe* the ‘built-in’ *physical* processes which may be said to *underlie* behavior. As a theory, functionalism is very much the modern heir to the old *automaton* theory of the mind proposed in the 19<sup>th</sup> century. Where functionalism departs from behaviorism is in its willing to concede that a theory of what can be called ‘mental states’ and ‘mental functions’ is admissible in materialistic science even though it is not clear whether or not such ‘states’ and ‘functions’ are, or ever will be, accessible to physical measurement. In some ways, there seems to be some resemblance between the methods of functionalism theory and the approach used by physicists in constructing the theory of quarks, excepting, of course, that the functionalism theorists have a great deal more ‘observable matter’ to explain and a great deal more difficulty in being able to conduct controlled experiments than do the particle physicists.

Despite popularity among cognitive scientists, functionalism theory has so far not produced much in the way of eye-popping successes as far as coming up with a unified theory, or even a widely accepted paradigm, is concerned. It is, at this stage, still more of an attitude than a time-tested theory. I do not wish to appear overly harsh toward functionalism, especially since a great deal of the theory presented in this treatise is overtly functional in its nature. Still, the fact remains that, absent of any stunning successes, functionalism is open to the same criticisms leveled against the old automaton theory as well as some new criticisms leveled at some of its newer elements.

The first battleground in the argument between the supporters and detractors of functionalism is typically over the existence or nonexistence of *free will*. A great many people, although not all<sup>2</sup>, believe they are in some way in charge of their own actions, that they are free to choose to do or to refrain, to come or to go, and so on. They believe, in other words, that they possess an innate causal power of their own and are not merely slaves to stimuli and circumstance. While it is not possible to either prove or disprove the free will hypothesis on material grounds, the consequences that follow from the fact that so many people believe in a power of free will are profound.

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<sup>2</sup> Hobbes, for example, held that free will did not exist.

Consider the social consequences if enough people did not believe in this freedom. The first casualty would be the social fabric based on the concept of morality. If the will is not free then we can not logically hold that an individual is responsible for his or her actions. People could not be said to act in a morally *wrong* way because their every action would merely be an effect in a causal chain of events. Is a toaster acting in an evil manner when it burns the toast? Of course not. When the devil is merely blind mechanism, “the devil made me do it” becomes a legitimate excuse for every action. In a world in which everything is blind mechanism, there is no rational basis for the concept of *justice* and jurisprudence must become organized vengeance.

It is the ability to foresee this kind of implication that provides a strong motive for the opponents of functionalism to join battle with it on the ground of free will. As it happens, though, the proponents of free will can no more prove its existence, on the kind of materialistic grounds that the scientific materialist will find convincing, than the materialist can prove the nonexistence of free will to someone who does not happen to share the materialist’s faith in the doctrines of scientific materialism. The absence of a proof of existence is in no way the same thing as a proof of nonexistence, and people, whether scientist or nonscientist, know this. Nothing can be settled one way or the other on this battlefield of free will because the chasm separating the two armies is too great for either side to cross. All that is left for them to do is to stand at the edges, fire their arrows, and shout at one another.

It is quite another thing when science argues with science. On a scientific level, the issue is not so much whether or not free will exists; the issue is *whether or not mentalist concepts have a legitimate role in a science of mind*. A scientific pragmatist will answer: they do if by introducing them some advantage is realized and if no contradictions of fact are introduced into measurable effects by doing so; they do not if no tangible benefit can be achieved through their introduction. To quote James, “There can be no difference anywhere that doesn’t *make* a difference elsewhere – no difference in abstract truth that doesn’t express itself in a difference in concrete fact and in conduct consequent upon that fact, imposed on somebody, somehow, somewhere, and somewhen. The whole function of philosophy ought to be to find out what definite difference it will make to you and me, at definite instants of our life, if this world-formula or that world-formula be the true one” [JAME1: 25].

In his great book, *The Principles of Psychology*, James provided a detailed discussion of the pros and cons of the automaton theory (a theory of which functionalism is merely the modern form). This discussion was carried out from the viewpoint of a *scientist* rather than an advocate for or against the theory, and it included some scientifically observed facts for which strict materialism finds it difficult to provide an adequate answer [JAME2: 84-94]. One of the more interesting of these facts involves the idea of *stability* in increasingly complex brain structure. The lower brain functions, e.g. the basal ganglia, brain stem, or the hypothalamus, are remarkably

robust, stable structures. These lower structures are also remarkably limited when it comes to intellectual or 'higher' cognitive functions. On the other hand, the higher structures in the brain are less stable:

But what now are the defects of the nervous system in those animals whose consciousness is most highly developed? Chief among them must be *instability*. The cerebral hemispheres are the characteristically "high" nerve centers, and we saw how indeterminate and unforeseeable their performances were in comparison with those of the basal ganglia and the cord. But this very vagueness constitutes their advantage. They allow their possessor to adapt his conduct to the minutest alterations in the environing circumstances, any one of which may be for him a sign, suggesting distant motives more powerful than any present solicitations of sense. It seems as if certain mechanical conclusions should be drawn from this state of things. An organ swayed by slight impressions is an organ whose natural state is one of unstable equilibrium. We may imagine the various lines of discharge in the cerebrum to be almost on a par in point of permeability - what discharge a given small impression will produce may be called *accidental*, in the sense in which we say it is a matter of accident whether a rain drop falling on a mountain ridge descend the eastern or the western slope. . . The natural law of an organ constituted after this fashion can be nothing but a law of caprice. I do not see how one could reasonably expect from it any certain pursuance of useful lines of reaction, such as the few and fatally determined performances of the lower centers constitute within their narrow sphere. The dilemma in regard to the nervous system seems, in short, to be of the following kind. We may construct one which will react infallibly and certainly, but it will then be capable of reacting to very few changes in the environment - it will fail to be adapted to all the rest. We may, on the other hand, construct a nervous system potentially adapted to respond to an infinite variety of minute features in the situation; but its fallibility will then be as great as its elaboration. We can never be sure that its equilibrium will be upset in the appropriate direction. In short, a high brain may do many things, and may do each of them at a very slight hint. But its hair-trigger organization makes of it a happy-go-lucky, hit-or-miss affair. It is as likely to do the crazy as the sane thing at any given moment. . . The performance of a high brain are like dice thrown on the table. Unless they be loaded, what chance is there that the highest number will turn up oftener than the lowest? [JAME2: 91-92].

James then goes on to point out that the phenomenon of consciousness seems to be *efficacious*. In other words, it seems to play a *positive* role in cognitive functioning, namely that of *stabilizing and directing* brain function. To borrow from James' dice-throwing example just quoted, *consciousness loads the dice*. If this is indeed the case, it hints at a causality at work in the brain other than that of the external stimuli. James himself was too much of a positivist to try to conclude that this constituted evidence of any kind of 'mind stuff'. Rather, he concluded that this raised a legitimate question as to the proper way to look at the puzzle of what may be called the "mind-brain pair."

However inadequate our ideas of causal efficacy may be, we are less wide of the mark when we say our ideas of causal feelings have it, than the Automatists are when they say they haven't. As in the night all cats are gray, so in the darkness of metaphysical criticism all causes are obscure. But one has no right to pull the pall over the psychic half of the subject only, as the Automatists do, and to say *that* causation is unintelligible, whilst in the same breath one dogmatizes about *material* causation as if Hume, Kant, and Lotze had never been born. One cannot thus blow hot and cold. One must be impartially *naïf* or impartially critical. If the latter, the reconstruction must be thorough-

going or "metaphysical," and will probably preserve the common-sense view that ideas are forces, in some translated form [JAME2: 90].

The materialists may be eventually proven correct and be able to explain the vast array of phenomena named *understanding, reasoning, imagination, desire*, etc. on a purely mechanistic basis. But they have not done so yet, and they are so far from doing so that none can foresee when or if their efforts will be crowned with success. Moreover, their doctrine does not safeguard them from making some the same sort of egregious errors for which they condemn metaphysics. To take one example, the behaviorist tradition absorbed into functionalism holds that *thinking* is more or less a matter of "talking to oneself" silently. This view can be traced back to the attitude of logical positivism from which functionalism sprang, and Sellars himself was of this view. Or, if we are willing to follow the trail back even farther, we come to Hobbes, who held precisely this same view. However, we are today in possession of a number of experimental outcomes, taken from the study of very young children, that stand at odds with this proposition of functionalism. We will let one of the early discoverers of these facts, the great Swiss psychologist Jean Piaget, speak for himself:

My first example concerns the school of logical positivism. Logical positivists have never taken psychology into account in their epistemology, but they affirm that logical beings and mathematical beings are nothing but linguistic structures. That is, when we are doing logic or mathematics, we are simply using general syntax, general semantics, or general pragmatics in the sense of Morris, being in this case a rule of the uses of language in general. The position in general is that logical and mathematical reality is derived from language. Logic and mathematics are nothing but specialized linguistic structures. Now here it becomes pertinent to examine factual findings. We can look to see whether there is any logical behavior in children before language develops. We can look to see whether the coordinations of their actions reveal a logic of classes, reveal an ordered system, reveal correspondence structures. If indeed we find logical structure in the coordinations of actions in small children even before the development of language, we are not in a position to say that these logical structures are derived from language. That is a question of fact and should be approached not by speculation but by experimental methodology with its objective findings [PIAG17: 8-9].

It is not surprising that Piaget accepted his own challenge and investigated this matter [PIAG15: 86-90]. His finding, as he well knew at the time he gave the lecture quoted above, was as follows. "These data . . . indicate that language does not constitute the source of logic but is, on the contrary, structured by it."

So, although one cannot say that the approach taken by scientific materialism is necessarily wrong or fruitless, neither can one say it has exclusive claims, a "royal road" as it were, to being *the* one-and-only path to follow in the investigation of the phenomenon of mind. James was right when he argued that science and philosophy should work as partners in the investigation of complex questions. But if the *philosophy* behind scientific materialism is flawed, do the mentalist views provide any useful assistance? This is what we must next examine.

## § 5. The Mentalist Views

It is accurate to say that there are a great many different mentalist views of the mind, perhaps as many as there have been authors of philosophical discourses. Among these we can find, between any two different views, a number of points of disagreement. However, we may also distinguish some *themes* that different subsets of these views have in common at some level of abstraction. While any classification of the mentalist views based on this idea of themes is bound to suffer a number of defects, it is still of some use to try to outline some of these large themes into different groups. With that in mind, let us take a look at the following classification of themes proposed by Adler, *et al.* [ADLE: V2, 171-181].

### § 5.1 Theme 1: Mind is Intelligence or Reason and is Part of the Soul

This theme is one of the oldest among all of the different theories of mind. Its principal proponents included Plato, Aristotle, Plotinus, St. Augustine, and St. Thomas Aquinas. The epicurean philosopher Lucretius also subscribed, in part, to this view. The basic theme is as follows: Mind is a part of the soul, and it is distinct from other parts of the soul and from faculties such as imagination, desire, and the passions. Mind is identical to intelligence or reason.

It is obvious the description of mind put forth under this theme is an empty definition if we do not know what ‘soul’ means. It is here where the philosophers named above begin to differ with each other. Lucretius held that the soul was something material, i.e., made up of atoms. Plato, who is notoriously difficult to pin down with regard to fundamental definitions, regards soul as “the motion which can set itself moving<sup>1</sup>” [PLAT9: 1450-1455 (895b - 899d)]. Anything that has the power to move itself has a soul and is ‘alive’. Thus Plato held that the sun, fire, wind, and rivers were all alive. The soul is something entirely distinct from the body, and the human soul is trapped within the body during life. Death, consequently, is a liberation of the soul allowing the soul to escape from “the world of opinion” and exist once again in “the world of truth” from which it originally came.

The soul of man, according to Plato, is made up of two major parts, namely the immortal and the mortal. The immortal part of the soul is located in the head, and it is this part of the soul that is the mind of man [PLAT3]. This is the “intelligent” soul. Sense, passion, and other affections belong to the mortal soul, which is separated from the immortal soul by the neck. Intelligence

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<sup>1</sup> For the ancient Greeks, the idea of "motion" was much broader than our common usage of that word in the present day. Taken at the most general level, Greek "motion" was change of any kind (*kinesis*). Physical motion (change of place) was merely one class of motion within this broader context. The ancient Greeks would say that when a man's hair changes color from dark to white, this change of color was also a motion. Likewise, "coming to be" and "passing away" are motions, so the transition from life to death is another kind of motion [MARI: 12-34].

(i.e., the immortal soul) remembers the Platonic Ideas, which it learned prior to becoming encased in the body when it existed in the “world of truth.” The mortal soul is inferior to the immortal soul and, consequently, is ‘moved’ by intelligence and, in turn, ‘moves’ the corporeal body.

Aristotle, who was a scientist (unlike Plato), was much more concerned about definitions from first principles. His starting point was that everything which exists is a *something*, i.e., is made up from some kind of primordial stuff he called *substance*. Aristotle marks a distinction between a thing that exists (*Dasein* in German) and the manner or mode *in which* it exists (*Existenz* in German). The essence of a thing is described in terms of two *ontological moments*, called *matter* (*hyle* in Greek, *materia* in Latin) and *form* (*eîdos* in Greek, *forma* in Latin). Matter and form are, in a sense, static descriptions of a thing for neither of these two ideas contain the idea of motion (“change”). Rather, they are descriptive of the thing *as it is at this moment*. A complete description of a thing must include a dynamical factor in terms of which the changing properties (“accidents”) exhibited by the thing can be expressed. In other words, we must express the *kinesis* in the mode of existence of the thing. For this Aristotle employs two additional terms: *potential being* (*dynamis*) and *actual being* (*enérgeia*).

According to Aristotle, matter is what is persistent and unchanging in the primordial substance and undeveloped matter contains the ‘potentiality’ of all that a thing can become. Form is what gives a thing its ‘actuality’ and the perception that a thing undergoes change is the perception of change in the form of the thing. “Energy” is therefore a word that describes the process by which form is realized. Form and matter are not different ingredients of a thing; rather, they are inseparable from the thing itself, and, whatever the form of a thing may be at any given time, the thing always has the potential (in its matter) to assume another form and take on the appearance of having changed.

We are now in a position to appreciate what the word “soul” meant to Aristotle. Of the things existing in the physical world, some bodies are inanimate (e.g., a stone) and some are animate, i.e., are *living* bodies. Aristotle defines “life” as self-nutrition, growth, and decay. The soul is the actuality of a living body and is the cause of a living body. The body is merely matter, i.e., that which could potentially be alive; soul (*psyche*) is the actuality of life [ARIS9: bk II]. In his view it is meaningless to ask how the body and soul are united because they are of *one* substance, the former as its matter and the latter as its form.

Given this, it is still possible to analyze the idea of soul and distinguish classes of soul. Aristotle defines three such classes: the vegetative soul, the sensitive soul, and the rational soul. The vegetative soul is possessed by all living things, for this soul refers merely to self-nutrition, growth, and decay. The sensitive soul is not possessed by plants but is possessed by animals. This class of soul refers to the possession of senses and feelings, i.e., *perception*. The rational soul adds to perception the capacity for *thinking* and *understanding*. In a word, the rational soul *is*

mind (*noûs*). Mind, in turn, is characterized as having two kinds of intelligence. There is a passive intelligence which subsists in its faculty for receiving impressions from the sense. This passive intelligence is likened to a wax tablet (*tabula rasa*) on which sensible impressions are stamped. The other kind of intelligence is the active intelligence (*noûs poietikós*) and is a faculty for *making* ideas (i.e., an intellect that is *theoretical* and not merely a wax tablet).

We can see that there are some clear and fundamental differences between the theories of Plato and Aristotle. The Platonic theory is rational and realist; the Aristotelian theory is empirical and realist. Science, in its long evolution, has mostly found the Platonic view somewhat impossible to incorporate into its methods (although the situation is quite different in the history of mathematics). The Aristotelian view, though, provides through its empiricism a starting point for science to take hold. The weakness of Aristotelian physics was not, as is popularly put forth in modern times, an absence of experimentation; Aristotle's great handicap was that he lived before the invention of *instruments* for performing accurate measurements<sup>2</sup>.

Some seven centuries after Plato, the basic elements of his theme of mind entered Christian theology through St. Augustine. Augustine's direct knowledge of Plato appears to have been rather limited, and it was through the tradition of Neo-Platonism founded by Plotinus that Plato's theory came down to him. For Augustine the problem was to reconcile Greek philosophy with Christianity, and to do so he made a number of changes to the Platonic theory<sup>3</sup>. The soul was now the *interior of man*. The soul is spiritual and within it is found a triple division – memory, intelligence, and love – which mirrors in a sense the Trinity. As in Plato, mind is intelligence and, therefore, a part of the soul [MARI: 113-121].

Eight hundred years after the time of Augustine, we find Aristotle entering Christian theology through St. Albertus Magnus and, above all, through the *Summa Theologica* of St. Thomas Aquinas [AQUI]. Aristotle seems to have never taken hold in the Roman empire, and by the time of Aquinas his works seem to have been preserved mainly through the early Arabic and Jewish philosophers. By the thirteenth century the medieval scholasticism that had evolved from Augustine had taken on the character of so intense a spiritualism as to become mystical. The reintroduction of Aristotle into medieval Europe presented grave problems for Christian theology. It was St. Thomas who successfully accomplished the adaptation of Aristotle's philosophy which made its assimilation into Christian thought possible. He undoes Plato's division of soul into a mortal and an immortal part. From now on the soul, while remaining the subsistent form of man,

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<sup>2</sup> It is also worth keeping in mind that Aristotle's primary scientific interests were in medicine and biology rather than mechanics.

<sup>3</sup> Of the various Greek schools of philosophy in Augustine's day, it was the Platonic tradition that was the least in conflict with the doctrines of the early Christian church. Indeed, one finds a number of striking parallels in, for example, Plato's *Timaeus* [PLAT3] and the old testament version of the creation of the world.

will also be the immortal part of man, and he more thoroughly develops Aristotle's notions of the passive and active mind. Above all, St. Thomas attempts to show that theology is a science. In this attempt, modern science would say that he failed since St. Thomas' fundamental premise upon which theology can claim to be science is divine revelation.

## § 5.2 Theme II: Mind is a Thinking Substance

By the beginning of the seventeenth century the growing conflict between science and scholastic philosophy had produced a backlash against the dominant position of theology in philosophy. This backlash would lead to the emergence of what might be called "the philosophies of doubt." I use the plural here because there were, in fact, two distinct philosophical attitudes that emerged early in that century: rationalism (in continental Europe) and British empiricism. The latter, in turn, divided itself into the materialism of Hobbes (which we have already discussed) and what we can call mentalist empiricism that developed from Locke.

In contrast, modern rationalism originates with the French mathematician and philosopher René Descartes. Rationalism and empiricism are opposed to each other. They begin from different premises and follow along different lines of development. Interestingly, though, they each come to share a common theme, namely, that mind is a 'something' in a 'real' (that is, neo-Aristotelian) sense. Whether this something is called ego or soul, the common point for both rationalism and empiricism is that mind is a *substance*. The nature of this substance can be, and was, a point of disagreement among the thinkers of this period. Where this theme departs from Aristotle is the *indivisibility* of this substance. If this substance is a soul, then mind *is* soul and the powers of the mind are identical to the powers of the soul. It is on this point that Descartes (1596-1650), Locke (1632-1704), and Berkeley (1685-1753) find themselves in agreement, while differing radically with each other on other points. Even William James (1842-1910) finds "mind as soul" to be an acceptable premise, although James' pragmatic attitude toward this point is more or less one of "does it make any difference?" as far as science is concerned.

This question, "does it make any difference?" is a question that concerns us in this work. More specifically, will this second theme prove to be a useful idea, a harmful idea, or is it an idea to which a science of mental physics can be completely indifferent? To know this, we must know more about the implications of the idea of "mind as a substance." Because "mind is a substance" and "mind is soul" stand but a short distance from each other, the temptation is great to dismiss this second theme out of hand and move on because science cannot address soul. However, if we so act in an out of hand manner, we run the risk of overlooking underlying perspectives that might possibly be useful and fecund (as points of reference if in no other way). In other words, if "mind is a substance" is a starting point, and if we find such a principle to be scientifically objectionable, that is one thing. But if "mind is a substance" is merely an objectionable



*conclusion* reached by these men, that is quite another thing and we should look at how they came to this view in order to discover what is the nature of the fundamental question<sup>4</sup> and to avoid making errors in kind ourselves. There is a great deal of truth in the aphorism that the power of science lies in knowing what questions *not* to ask; but it is even more true that the success of science depends on keeping an open mind that we may *judge* rather than *prejudge* what we will and will not take into the making of a theory.

Any brief synopsis of a theory runs the risk of making it appear ridiculous at face value. This is true even if that synopsis is intended to be benign or even merely dispassionate<sup>5</sup>. If we are to expend our time and energy to give “mind as a substance” a fair hearing, we can do no better at the beginning than to ask ourselves “what are we trying to find out?” Let us suppose that, at this point, we cannot imagine any way in which “mind is a substance” can be a scientifically useful idea or premise. Then let us remind ourselves that some of the seventeenth century thinkers who held this idea, particularly Descartes and Leibniz, also made significant contributions to science and mathematics. These were not stupid men, nor were they unacquainted with science, nor were they concerned primarily with theology. What led them to this theme, and what issues were they trying to address? And why did they think they *had* addressed them? These are the questions of interest to us here and which we will now undertake, briefly, to examine. To do so, it seems appropriate to begin at that point in history that, to the scientific world, is known as the time of Galileo. But it is not with Galileo himself that we will be concerned; it is with the temper of thought at the end of the medieval period of scholasticism and with the expression of this temper given voice by Sir Francis Bacon.

### § 5.3 Francis Bacon and the Dawn of the Age of Reason

Let us look at the world in which Francis Bacon (1561-1626) found himself. This was, in Britain, the time of transition from Elizabeth I to James I. It was a time when expanding business and commerce were fueling the need for, and compelling the development of, science. It was, at the same time, a world dominated by occult superstition, a world where witchcraft was punishable by burning at the stake<sup>6</sup>, and where the belief in demons, exorcisms, haunted houses, and a host of other superstitions acted to poison the development of science at its roots. It was in this climate that Bacon wrote of “the excellency of learning and knowledge, and the excellency of the merit and the true glory in the augmentation and propagation thereof”:

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<sup>4</sup> If “mind is a substance” is a theme we do *not* find objectionable, or is one which we are at least willing to give a hearing so as not to act prejudicially, then, of course, its examination stands on its own merits.

<sup>5</sup> And, of course, it is easy to ridicule a theory maliciously in synopsis form.

<sup>6</sup> By some accounts, eight thousand women were burned as witches in Scotland between 1560 and 1600.

In the entrance to the former of these, to clear the way, and as it were to make silence, to have the true testimonies concerning the dignity of learning to be better heard, without the interruptions of tacit objections; I think good to deliver it from the discredits and disgraces to which it hath received, all from ignorance; but from ignorance severally disguised; appearing sometimes in the zeal and jealousy of divines; sometimes in the severity and arrogance of politiques; and sometimes in the errors and imperfections of learned men themselves.

I hear the former sort say, that knowledge is of those things which are to be accepted of with great limitation and caution: that the aspiring to overmuch knowledge was the original temptation and sin whereupon ensued the fall of man . . .

To discover then the ignorance and error of this opinion, and the misunderstanding in the grounds thereof, it may well appear these men do not observe or consider that it was not the pure knowledge of nature and universality . . . which occasioned the fall . . . it is manifest that there is no danger at all in the proportion or quantity of knowledge, how large whatsoever . . . [BACO1: 2].

Bacon challenged most of the prevailing attitudes of his day. Fifteen years later (1620), he would write:

(There) are idols which have crept into men's minds from the various dogmas of peculiar systems of philosophy, and also from the perverted rules of demonstration, and these we denominate idols of the theatre: for we regard all the systems of philosophy hitherto received or imagined, as so many plays wrought out and performed, creating fictitious and theatrical worlds. Nor do we speak only of the present systems, or of the philosophy and sects of the ancients, since numerous other plays of a similar nature can be still composed and made to agree with each other, the causes of most opposite errors being generally the same. Nor, again, do we allude merely to general systems, but also to many elements and axioms of sciences which have become inveterate by tradition, implicit credence, and neglect. . .

The human understanding, from its peculiar nature, easily supposes a greater degree of order and equality in things than it really finds; and although many things woven in nature be *sui generis* and most irregular, will yet invent parallels and conjugates and relatives, where no such thing is. . . Nor is this folly confined to theories, but it is to be met with even in simple notions.

The human understanding, when any proposition has been once laid down (either from general admission and belief, or from the pleasure it affords), forces everything else to add fresh support and confirmation; and although most cogent and abundant instances may exist to the contrary, yet either does not observe or despises them, or gets rid of and rejects them by some distinction, with violent and injurious prejudice, rather than sacrifice the authority of its first conclusions. . .

The human understanding is most excited by that which strikes and enters the mind at once and suddenly, and by which the imagination is immediately filled and inflated. It then begins almost imperceptibly to conceive and suppose that everything is similar to the few objects which have taken possession of the mind, whilst it is very slow and unfit for the transition to the remote and heterogeneous instances by which axioms are tried as by fire, unless the office be imposed upon it by severe regulations and a powerful authority. . .

The human understanding resembles not a dry light, but admits a tincture of the will and passions, which generate their own system accordingly; for man always believes more readily in that which he prefers. He, therefore, rejects difficulties for want of patience in investigation; sobriety because it limits his hope; the depths of nature from superstition [BACO2: 110-111].

In general, men take for the groundwork of their philosophy either too much from a few topics, or too little from too many; in either case their philosophy is founded on too narrow a basis of experiment and natural history, and decides on too scanty grounds. . .

The empiric school produces dogmas of a more deformed and monstrous nature than the sophistic or theoretic school; not being founded in the light of common notions . . . but in the confined obscurity of a few experiments. . . We have strong evidence of this in the alchemists and their dogmas . . .

The corruption of philosophy by the mixing of it up with superstition and theology, is of much wider extent, and is most injurious to it both as a whole and in its parts. For the human understanding is no less exposed to the impressions of fancy than to those of vulgar notions. . .

Another considerable evil is, that men in their systems and contemplations bestow their labor upon the investigation and discussion of the principles of things and the extreme limits of nature, although all utility and means of action consist in intermediate objects. Hence men cease not to abstract nature till they arrive at potential and shapeless matter, and still persist in their dissection, till they arrive at atoms; and yet were this all true, it would be of little use to advance man's estate.

The understanding must also be cautioned against the intemperance of systems, so far as regards its giving or withholding its assent; for such intemperance appears to fix and perpetuate idols, so as to leave no means of removing them.

These excesses are of two kinds. The first is seen in those who decide hastily, and render the sciences positive and dictatorial. The other in those who have introduced scepticism, and vague unbounded inquiry. The former subdues, the latter enervates the understanding [BACO2: 114-115].

Bacon stands at the dawn of the age of reason, and he is bluntly critical in his assessment of the state of learning, education, and knowledge of his time. His words stand also as a warning to future generations, for in the life cycle of even a great idea, when this idea hardens to dogma it is great no longer. In the four centuries that stand between ourselves and Francis Bacon, we have ample evidence that “the human understanding” of which he wrote has not changed, nor has humankind learned to avoid the pitfalls he describes<sup>7</sup>.

We may take Bacon's words as a reflection of a general attitude and outlook of the men who shaped the philosophies that would in turn shape the birth of modern science in the seventeenth and eighteenth centuries. His words are not the words of a mystic, nor those of an old guard fighting against the march of change science would shortly bring about. They are words of rebellion against superstition, mysticism, and ignorance. With this as our introduction, let us now examine the second theme of mind from the viewpoint of rationalism. We shall save our look at empiricism until we come to the third major mentalist theme, for which empiricism is, in large measure, the spokesman.

#### § 5.4 Rationalism and Mind as Substance

If we ask for a concise statement of what is meant by *rationalism*, one answer we would get is that rationalism is the philosophical position that the mind is endowed with a certain number of ready-made principles or faculties from which knowledge can be obtained independently of direct sensible experience. Knowledge of this sort is called *a priori*, and is held by rationalists to be both certain and necessary.

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<sup>7</sup> As one instance among many, we have only to look at the popularization in American culture of the glandular ramblings of Nietzsche and the irony with which the modern "value relativism" has adopted from, and adapted to, Nietzsche's thought [Allan Bloom, *The Closing of the American Mind*, pp. 141-156: Simon & Schuster, 1987].

The first question that naturally arises from this idea of knowledge *a priori* is: what kind of knowledge is this? What things do we know with certainty, necessity, and without the benefit of empirical experience? This question is closely coupled with a second one: What makes us think that knowledge of this sort exists? We will explore these questions by examining the two most prominent proponents of rationalism in the seventeenth century: Descartes and Leibniz.

## Descartes

René Descartes has been called “the first modern man”; he was a decisive figure in the transition from the medieval period to the modern era. Descartes’ lasting contribution to science was his development of analytic geometry, and he also made some contributions to the science of optics and to the birth of physiology. Of particular note is his calculation of the angle of refraction of light and the development of lenses for correcting spherical aberrations in telescopes.

In philosophy he was the founder of what has been called the philosophy of doubt. As a young man, Descartes received a Jesuit education which included ample study of various philosophical systems, which he found to be flawed throughout with contradictions.

I shall not say anything about Philosophy, but that, seeing that it has been cultivated for many centuries by the best minds that have ever lived, and that nevertheless no single thing is to be found in it which is not subject of dispute, and in consequence which is not dubious, I had not presumption to hope to fare better there than other men had done. And also, considering how many conflicting opinions there may be regarding the self-same matter, all supported by learned people, while there can never be more than one which is true, I esteemed as well-nigh false all that only went as far as being probable.

Then as to the other sciences, inasmuch as they derive their principles from Philosophy, I judged that one could have built nothing solid on foundations so far from firm. [DESC3: 43].

Descartes yearned for *certainty* in knowledge, but how was this to be found in view of this perceived confusion in the philosophical systems? His answer to this was to “strip oneself of all opinions and beliefs formerly received” [*ibid.*: 42] and adopt a new approach based on a few strict rules for a method of discourse.

The first of these was to accept nothing as true which I did not clearly recognize to be so: that is to say, carefully to avoid precipitation and prejudice in judgments, and to accept in them nothing more than what was presented to my mind so clearly and distinctly that I could have no occasion to doubt it.

The second was to divide up each of the difficulties which I examined into as many parts as possible, and as seemed requisite in order that it might be resolved in the best manner possible.

The third was to carry out my reflections in due order, commencing with objects that were the most simple and easy to understand, in order to rise little by little, or by degrees, to knowledge of the most complex, assuming an order, even if a fictitious one, among those which do not follow a natural sequence relatively to one another.

The last was in all cases to make enumerations so complete and reviews so general that I should be certain of having omitted nothing [DESC3: 47].

This was indeed an ambitious standard, and one with a distinctly mathematical flavor. Descartes was committing himself to first establishing a starting point or ground of which he could be absolutely certain of its truth, and then accepting nothing else as true unless it followed necessarily from this certain ground.

Having put all knowledge on trial by declaring all knowledge to be false unless proven true, Descartes found that there was one thing that he could *not* maintain to be untrue. He found that he could not possibly doubt the truth of his own existence, a certainty that followed from his famous *cogito ergo sum* [DESC1]. Although the phrase is Descartes', this idea was not new. St. Augustine had used this logic to refute the arguments of pagan skeptics twelve centuries before Descartes, and Montaigne had used it similarly to defeat the arguments of the Pyrrhonists. But with Descartes, *I think therefore I am* assumed a much more central and crucial role in his philosophy. Augustine could lean on his faith, and Montaigne on his own good common sense, but Descartes had denied himself both of these luxuries.

Having decided that he did indeed exist, Descartes then asked himself: What is this "I" whose existence is certain? It is at this point that his view of mind as substance arises, for when Descartes examines the evidence of the existence of his body and senses, he finds that he *can* doubt his own corporeal reality, and that all he knows of himself is his reality as mind:

I find here that thought is an attribute that belongs to me; it alone cannot be separated from me. . . I am not a collection of members which we call the human body; I am not a wind, a fire, a vapor, a breath, or anything at all which I can imagine or conceive; because I have assumed that all these were nothing. Without changing that supposition I find that I can only leave myself certain of the fact that I am somewhat. But perhaps it is true that these same things which I supposed were non-existent because they are unknown to me, are really not different from the self which I know. I am not sure about this, I shall not dispute about it now; I can only give judgment on things that are known to me. . . But what then am I? A thing which thinks. What is a thing which thinks? It is a thing which doubts, understands, conceives, affirms, denies, wills, refuses, which also imagines and feels [DESC1: 78-79].

In this passage from *Meditations*, we see Descartes' list of the properties – thinking, doubting, etc. – that he sees as attributes of mind 'substance.' But it is equally important for us to take note of his viewpoint regarding the uncertainty with which he is faced in regard to the reality of his corporeal self. Descartes was able to think up a situation in which all of the data of his senses could be a deception, and he finds himself unable to know with certainty that he is not the victim of such a deception. Because he has taken an absolute position that everything is false unless and until it can be proven true (according to the same standard of certainty his *cogito ergo sum* is accorded), he is trapped between individualism and solipsism.

Now, Descartes did not seriously believe himself to be a disembodied mind anymore than I believe I have wings and can fly with the birds. But the standard for judging truth that he has set for himself is so severe that it presents him with a desperate situation. If he cannot find a way to justify the “truth” of his corporeal existence within the framework of his premise of holding things to be false until proven true, his method is sterile and his philosophical discourse is at an end.

Desperate situations call for desperate measures, and Descartes finds himself forced into establishing his own corporeal existence by first establishing the “certainty” of the existence of God. He does so through arguments that loosely parallel St. Anselm’s “ontological proof” of God’s existence. Encapsulated, the argument proceeds as follows: I have a concept of a being (God) who is infinite, most perfect, omniscient, etc.; a being which exists is more perfect than a being which does not; this idea had to come from somewhere; I myself am finite, flawed, etc.; therefore I cannot have given myself this idea; therefore I must have been *given* this idea; but this idea can only have been given to me by God; therefore God exists; but God, being all-good, would not deliberately allow a “malignant genius” to deceive me; therefore my perception that I have a corporeal body is not a deception; therefore it is real. With this argument, Descartes believes he has broken out of the solipsist trap and can now apply himself to examining the rest of the sensible world.

This “proof” of the existence of God is so specious that it was even rejected by the church in Descartes’ own time, much as St. Anselm’s proof was rejected by St. Thomas. Descartes seems to overlook the rather obvious corollary that if his perceptions of his corporeal existence were a deception wrought by a “malignant genius” (the devil?) such a malignant genius could just as well have planted a false idea of “God” in Descartes’ mind. *Cogito ergo sum* does not imply *cogito semper veritate*. If I can think I might be wrong when I think I have a body, why can I not also think I might be wrong when I think there is a God?

Descartes’ approach creates another problem for him, and for this one he did not succeed in finding a way out. The ‘essential I’ is mind (*res cogitans*), and this is something quite separate from body (*res extensa*). How, then, does it come to be that the incorporeal *res cogitans* is able to communicate with the *res extensa*? This problem of communication between substances, which are things that must be seen as independent of each other if they are to be considered as individual substances, is common to all rationalist models. This problem of Cartesian duality is almost as well known as his *cogito ergo sum*, and is commonly called the *mind-body problem*. The only solution Descartes can offer to this problem involves, once again, the intervention of the *res infinita* or God. But why God should choose to busy Himself with working continuous miracles so that the substances of His universe can continually communicate with each other is a question Descartes can not explain within the limits of his presumption of falsity. This problem was

gleefully recognized by Descartes' contemporary opponents, particularly the empiricists, and is known today as the *homunculus*<sup>1</sup> problem.

The lesson we can take from all this is fairly obvious. The fundamental problems and issues that pour out of Descartes' "idea-ism" are, in a sense, self-inflicted. They stem from the absolute standard he sets for himself in judging what constitutes acceptable knowledge on the basis of his *presumption* of falsity. Descartes lacks a positive criterion to supplement his negative one and is forced to substitute divine agency in place of the positive criterion he so frequently needs. In short, his error lies in basing his entire method on a single absolute and arbitrary standard. As Bacon might have put it, he "takes too little from too few topics."

### Leibniz

Gottfried Wilhelm Leibniz (1646-1716) was a mathematician, diplomat, philosopher, and general polymath who dabbled in alchemy, physics, and biology. He was a contemporary of Newton, Locke, Spinoza, and the Cartesian philosopher Nicolas de Malebranche and either knew or at least corresponded with each of these eminent men. He was the last of the pre-Kantian rationalist philosophers to develop a decidedly unique philosophical system, one which shows the influences of Plato, the Scholastic philosophers, Bruno, Spinoza, Descartes, Hobbes, Locke, and, of course, Aristotle. He is most remembered today for his discovery of calculus, which he developed independently of Newton.

Leibniz saw the mind as a complex organ with *a priori* structures and functions that transform the data of sensation into concepts and ideas. He had read with great interest Locke's influential *An Essay Concerning Human Understanding*, which laid the foundations of British empiricism (which we will discuss later). While he thought that Locke's work was of great importance, he disagreed fundamentally with Locke's theory that the mind contained nothing except what was put there by the senses, and amended Locke's dictum with his own, "There is nothing in the understanding which does not come from the senses, except the understanding itself, or that which understands" [LEIB6]. In his *New Essay*, Leibniz commented on his difference in outlook from that of Locke:

In fact, although the author of the *Essay* says a thousand fine things of which I approve, our systems differ very much. His has more relation to Aristotle, and mine to Plato, although we both diverge in many things from the doctrines of these two ancients. . . Our differences are on subjects of some importance. The question is to know whether the soul in itself is entirely empty, like the tablet on which nothing has yet been written (*tabula rasa*) according to Aristotle and the author of the *Essay*, and whether all that is traced thereon comes solely from the senses and from experience; or whether the soul contains originally the principles of several notions and doctrines which external objects

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<sup>1</sup> Literally, "the little man in the head."

merely awoken on occasions, as I believe, with Plato, and even with the schoolmen, and with all those who take with this meaning the passage of St. Paul (Romans, 2, 15) where he remarks that the law of God is written in the heart [LEIB1: 368-369].

In the passage just quoted, we see that Leibniz and Locke also view mind as being a “soul” substance, although in Leibniz’ case we find that his notion of “soul” is very different from the common understanding of that term<sup>2</sup>. Of more significance, though, is the question Leibniz poses. The most fundamental distinction between the rationalist view and the empiricist view turns on the issue of whether or not the mind contains within it *a priori* “innate ideas” and, if it does, what these “ideas” may be. Leibniz, a rationalist, calls these innate ideas the *supersensible elements* of mind. The clearest sense of what he means by “supersensible element” was set down in a letter he wrote to Queen Sophie Charlotte of Prussia in 1702:

We use the external senses as, to use the comparison of one of the ancients, a blind man does a stick, and they make us know their particular objects, which are colors, sounds, odors, flavors, and the quality of touch. But they do not make us know what these sensible qualities are or in what they consist. . .

Thus it may be said that *sensible qualities* are in fact *occult qualities*, and that there must be others *more manifest* which can render the former more explicable. And far from understanding only sensible things, it is exactly these which we understand the least. . .

It is for this reason that we are accustomed to say that the *notions* of these qualities are *clear*, for they serve to recognize them; but that these same notions are not *distinct*, because we cannot distinguish or develop that which they include. It is an *I know not what* of which we are conscious, but for which we cannot account. . . However, we must do the senses justice to say that, in addition to these occult qualities, they make us know other qualities which are more manifest and which furnish more distinct notions. And these are those which we ascribe to the *common sense*, because there is no external sense to which they are particularly attached and belong. . . Such is the idea of *numbers*, which is found equally in sounds, colors, and touches. . .

(There) must be an *internal sense*, in which the perceptions of these different external senses are found united. This is what is called the *imagination*, which comprises at once the *notions of the particular senses*, which are *clear* but *confused*, and the *notions of the common sense*, which are clear and distinct. And these clear and distinct ideas which are subject to the imagination are the objects of the *mathematical sciences* . . . For those who try to explain sensible qualities distinctly always have recourse to the ideas of mathematics, and these ideas always involve *size* or multitude of parts. It is true that the mathematical sciences would not be demonstrative, and would consist in a simple induction or observation, which would never assure us of the perfect generality of the truths there found, if something higher and which intelligence alone can furnish did not come to the aid of the *imagination* and the *senses*.

There are, therefore, objects of still other nature, which are not included at all in what is observed in the objects of sense in particular or in common, and which consequently are not objects of the imagination either. Thus besides the *sensible* and the *imaginable*, there is that which is purely

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<sup>2</sup> One does not find any of the seventeenth century philosophers failing to equate mind with soul, or to bring God properly into account somewhere within their philosophical systems. In many cases, and this seems to be the case with Leibniz, this appears to be done "in good faith"; even so, the trial and conviction of Galileo as a heretic in 1633 can hardly be dismissed as a relevant factor of the times. Even Newton was careful to base his physics on a divine foundation, and to keep his own Unitarian views, a grave heresy at the time, to himself.



*intelligible*, as being the *object of the understanding alone*, and such is the object of my thought when I think of myself.

This thought of the *Ego*, which informs me of sensible objects, and of my own action resulting therefrom, adds something to the objects of the senses. . . . And as I conceive that other beings may also have the right to say *I*, or that it could be said for them, it is through this that I conceive what is called *substance* in general, and it is also the consideration of the *Ego* itself which furnishes other *metaphysical* notions, such as cause, effect, action, similarity, etc., and even those of *logic* and *ethics*. Thus it can be said that there is nothing in the understanding which does not come from the senses, except the understanding itself, or that which understands.

There are then three grades of notions: the *sensible only* . . . *the sensible and at the same time intelligible* . . . and the *intelligible only*, which belongs to the understanding. The first and second are both imageable, but the third are above the imagination. The second and third are intelligible and distinct; but the first are confused, although they are clear and recognizable. . . .

Thus, what the ancient Platonists have observed is very true, and is very worthy of being considered, that the existence of intelligible things and particularly of the *Ego*, which thinks and which is called spirit or soul, is incomparably more sure than the existence of sensible things; and that thus it would not be impossible, speaking with metaphysical rigor, that there should be at bottom only these intelligible substances, and that sensible things should be but appearances [LEIB6: 355-360].

### The Supersensible

We have quoted the foregoing passage at length because it contains both the core of a doctrine we will have occasion to lean upon very heavily, and, in its final sentence, it contains the seed that will grow into the fundamental error in Leibniz' system. The core is the idea of the supersensible object, which we will elaborate upon in this section. The seed is the Platonic speculation that will grow to become Leibniz' theory of monads, which we will take up in the following section.

Fundamentally, the "supersensible" is merely some thing that is not an object of immediate or direct sensation, but whose existence is nonetheless regarded as "real" in some way. As an illustration, let us compare the concepts of "weight" and "mass" as these terms are used in classical physics. *Weight* denotes something sensible. When we pick up an object, we say it is light or it is heavy based on our sensation of how easy or how difficult it is to lift. We can make this idea quantitative by using instruments, such as a spring scale or a balancing scale to measure the "weight" of a thing. *Mass*, on the other hand, is supersensible. When a physicist is talking about the "mass" of an object, he is not referring to its weight. Taken formally, mass is the proportionality factor that links velocity to momentum (or, if one prefers, the proportionality factor that links acceleration to force). Mass is an idea that is a step removed from the direct experience of sensation and which takes its meaning, ultimately, from the observed relations between different sensible objects. In his book, *The Nature of Physical Reality*, Margenau calls such an idea a *construct* [MARG: 54-101]:

Mass, though not part of Nature, has some intuitable aspects; but it lies somewhat farther from Nature than does the apple [MARG: 65].

Nothing is more common in everyday discourse than various ideas of supersensible objects. Consider the question of what we mean when we refer to *King Henry V* by Shakespeare. Everyone knows this is a play; but what is *it*? When one says, “*Henry the Fifth* is a great play,” what is the “it” that is great? Do we mean the actual King Henry himself? No. Do we mean the manuscript of the play? Generally we’d say no here as well because the manuscript is not the play; it is only the script of the play. Do we mean the last production of the play we saw in the community theater? Again, no, although we might say the performance was great. Still, we have this concept of something called *King Henry V* of which we say “it is great.”

People today would agree that fairies are not ‘real’. What, then, are the chief characters in a *fairy tale*? To this question one might answer, “Fairies are make-believe. They are imaginary creatures in a story.” Fair enough. Yet we have no difficulty understanding tales of Puck or Father Frost. Fairies must, therefore, be ‘real’ *in some sense of the word* or else we must deny all reality to the thing we call a fairy tale. But granting a limited reality to fairies does not mean that we grant unrestricted reality to them. I can assert the ‘reality’ of fairies in old tales without expecting to find one hiding in my closet or supposing that fairies are mountain gardeners who grow the fields of wildflowers. In some ways they are real, in others unreal.

This brings us to an important point regarding the supersensible. To predicate the *existence* of something is not the same as predicating its *reality*. In one sense, to say “*X* exists” is the least of predications; it merely announces a subject, *X*, while saying nothing else whatever about *X*. If I say “ $\sqrt{-1}$  exists,” I have told you nothing other than to announce that I have a concept of a thing called  $X = \sqrt{-1}$ . To predicate the *reality* of this thing, I must go farther and provide some kind of *context* or *meaning* within which I can relate my undefined notion *X* to other things whose relationships to *X* ultimately serve to “make sense” out of *X*. This can be done either in a positive sense or a negative sense. For example, if you ask me, “what is the real number which is  $\sqrt{-1}$ ?” I answer, “it does not exist.” The ‘reality’ of this *X* differs somehow from the ‘reality’ of those things mathematics calls the real numbers. If I must give a positive predication of this *X*, I can say, “*X* is a number with the property that  $X \cdot X = -1$ .” In this, I have said much, for I have said that *X* belongs to the class of things we call numbers, and I have provided an *operational* means by which *X* can ultimately be related back to less mysterious ideas (such as counting with one’s fingers).

Any examination of science quickly reveals that science is rich in supersensible ideas, i.e., ideas of things that are beyond the range of *any* possible sensation. Examples include electric charge, quantum probability amplitudes, entropy, probability density functions, transcendental numbers, quarks, the “rational man” of economics, the “ego” of psychology, etc. To these we

may also add “mind.” *How* a science comes to view these supersensible objects is crucial, for this viewpoint defines the ‘nature’ of the ‘reality’ of these things (hence Margenau entitled his book *The Nature of Physical Reality*).

In a very practical sense, science can be viewed as the study of the supersensible while excluding the supernatural. By “supernatural” we generally mean explanations which call upon the agency of God, the devil, demons, ghosts, angels, fairies, witches, and, most especially, miracles. “Then a miracle happens” is not an acceptable proposition in science because there is no way to study miraculous phenomena by any means. Leibniz states this scientific maxim quite well in the *New Essays*:

(That) which is natural must be able to become distinctly conceivable if we were admitted into the secrets of things. This distinction between what is natural and explicable and what is inexplicable and miraculous, removes all the difficulties; and by rejecting it, we should maintain something worse than occult qualities; and in this we would renounce philosophy and reason, by opening asylums of ignorance and idleness, through a moot system which admits not only that there are qualities which we do not understand, of which there are only too many, but also that there are some which the greatest mind, if God gave it all the compass possible, could not comprehend; that is, which would be either miraculous or without rhyme and reason; and also that God should make miracles ordinarily would be without rhyme and reason, so that this useless hypothesis would destroy equally our philosophy which seeks reasons, and divine wisdom which furnishes them [LEIB1: 391].

If the supersensible cannot come to us by means of the outer senses, where does it come from? When we eliminate the agency of an external world as the source of ideas of supersensible things, all that remains is that they are products of the mind. As such, a supersensible ‘exists’ because it is a something, and it has a ‘reality’ in some sense because ‘to be real’ merely is a predicate that denotes the context in which a concept ‘makes sense.’ We may, and should, ask at this point: why shouldn’t we hold that the supersensible is a product of *brain* instead of *mind*? After all, the idea of ‘mind’ is itself the concept of a supersensible thing. Why rule out ‘brain’ as the source of the supersensible?

The answer is: we *cannot rule out brain* as the source of our ideas of supersensible things. However, until we have a more *clear and distinct* understanding of what ‘mind’ means, it is just as incorrect to rule out mind as the source of the supersensible, for we have not defined the context in which mind has its reality. Can we not say that ‘mind’ is merely a name we give to describe brain activity? We can *say* it, but what would that *mean*? The only brain activity for which we have a *scientific* description is couched in concepts of neurons, electrical and chemical transmitters, cell structures, and so on. These ‘material’ ideas do not themselves contain any concept of what we call “mental activities.” It is, therefore, only useless speculation at this point to attempt an answer to our question. We must first give a real context to our idea of what we mean when we say “mind exists.” And this brings us back to Leibniz and his theory of mind.

With this discussion, we will have completed this brief survey of the rationalist theme of mind as thinking substance.

## Monads

I will begin this discussion by first stating the fundamentals of Leibniz' theory. Before I do so, I think it is wise to give you this warning: To a person educated in modern science, the conclusions of this theory are going to appear ridiculous and there is virtually no chance that any scientist is going to accept them. Then why discuss it? If we are to formulate our own theory of mind, it is to our benefit to examine how Leibniz could come to propose the theory of monads, and to see if we can discover at what point his reasoning takes an unacceptable turn, because Leibniz led himself to his theory from the best of scientific intentions: to save natural philosophy from becoming ruled by miracles. *If we find his conclusions to be flawed, we must understand the approach he took so as not to place ourselves in an equally untenable position when we formulate our own theory.*

The scientific revolution that began in the seventeenth century based itself in large degree on what we may call 'atomism' of one form or another. This was true to such a degree that the theories of mind that were proposed in this period based themselves on one or another 'atomic' hypothesis. The most successful of these hypotheses, if by success we mean "most widely adopted," was the corpuscle hypothesis put forward around 1661 by Robert Boyle [BOYL]. Boyle appears to be the first chemist to demolish, once and for all, the Greek doctrine of the "four elements" of earth, air, fire, and water. Instead, Boyle insisted, all 'matter' (which by this time had taken a meaning different from Aristotle's and came to be synonymous with 'corporeal matter') was composed of a union of tiny ultimate constituents (*minima naturalia*), invisible to the eye and differing in size and shape, much like the 'atoms' of Leucippus (*fl.* 450-420 B.C.). These tiny 'particles' combined with each other to produce *corpuscles*, which were supposed to be the basic 'elements' of matter. In this view, matter was defined to be "that which occupies space, possessing size and shape, mass, movability, and solidity (or 'impenetrability')." In this view, every quality and property of 'ponderable bodies' arose by purely *mechanical* means and laws. This view persisted in chemistry and physics until around 1803, when Dalton refined Boyle's corpuscles into the atoms of nineteenth century chemistry. Locke used this corpuscular theory in his empiricist theory of mind (which we will discuss in the next section).

Leibniz, on the other hand, found the corpuscle theory to be completely unacceptable. In his view, there were two kinds of truth: 1) truths of *reasoning*; and 2) truths of *fact*. The former was a truth that was *necessary* and whose opposite was *impossible*. Truths of reasoning were truths based on the first of two great principles of reasoning, namely, the principle of contradiction

(“that which involves contradiction is *false*; that which is opposed or contradictory to the false is *true*”). Truths of fact, on the other hand, are *contingent* because we get them from experience and can never know if some future experience might contradict them. To employ truths of fact, Leibniz said, we must subject them to the second great principle of reasoning, the principle of *sufficient reason* (“no fact can be real or existent, no statement true, unless there be a sufficient reason why it is so and not otherwise”) [LEIB2: 539].

In Leibniz’ view, the corpuscle theory fell into the category of truths of fact, and here he found this theory defective. His objection was not that corpuscle theory did not satisfy the principle of sufficient reason, for this would merely mean that corpuscles were a hypothesis and not an established fact. Instead, he objected to corpuscles because he held a sufficient reason *why the corpuscle theory must be false*. In a letter to De Volder in 1699, he wrote:

I do not believe extension alone constitutes substance, since its conception is incomplete. Nor to my mind can extension be conceived in itself; rather it is a further analyzable and relative conception. For we can analyze it into plurality, continuity, and co-existence (that is, simultaneous existence of parts). . .

For continuity itself - extension is, namely, nothing but a continuum with the character of simultaneity - is no more capable of constituting a complete substance than plurality or number requires the presence necessarily of the things counted, repeated, and continued. Hence I believe that our thought of substance is perfectly satisfied in the conception of force and not in that of extension. Besides, there should be no need to seek any other explanation for the conception of power or force than that it is the attribute from which change follows and its subject is substance itself [LEIB5: 158].

To Leibniz, the fundamental constituents of bodies were not corpuscles at all; rather, their substance was ‘force’ (what we would today call ‘energy’). Leibniz called these fundamental ‘simple’ substances<sup>1</sup> “monads.” Taken only this far, this picture is more compatible with modern quantum physics than was the corpuscle theory with its purely mechanical foundation. However, Leibniz does not leave it at this. Corpuscle theory is false, in his view, because it is “incomplete”; to understand Leibniz’ next step, we must understand in what way the corpuscle theory was “incomplete.”

Locke’s *Essay Concerning Human Understanding* [LOCK], which Leibniz greatly admired even while disputing it, based the theory of mind on the idea of corpuscles. After its publication in 1689, it soon came under attack by the Bishop of Worcester, who saw in Locke’s doctrine a liability for “abuse prejudicial to the Christian faith.” In particular, the Bishop asked “how reflection can assure us of the existence of the mind, if God can give to matter the faculty of thinking . . . since thus the way of ideas which ought to enable us to discern what may be proper to the soul or to the body would become useless” [LEIB1: 385-386]. Put another way, the Bishop felt that Locke’s theory, which found it unnecessary to suppose the soul to be immaterial in order

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<sup>1</sup> A simple substance is defined as a substance which contains no parts that are more elementary.

to “render [the idea of mind] intelligible to us,” left far too much of an opening through which doubt and loss of faith in Christian doctrines could enter. The Bishop admonished that, “the ends of religion and of morals are the better assured by proving that the soul is immortal by its nature, that is, immaterial” [LEIB1: 387].

Possibly with Galileo’s fate in mind, Locke soon found himself explaining and backtracking.

I admit that I have said . . . that body acts only by impulse and not otherwise; This also was my opinion when I wrote it, and still at present I cannot conceive in it another manner of acting. But since then I have been convinced by the incomparable book of the judicious Mr. Newton, that there is too much presumption in wishing to limit the power of God by our limited conceptions. The gravitation of matter towards matter, by ways which are inconceivable to me, is not only a demonstration that God can, when it seems good to him, put in bodies powers and ways of acting which transcend that which can be derived from our idea of body or explained by what we know of matter; but it is further an incontestable instance that he has really done so. I shall take care that in the next edition of my book this passage be corrected [LEIB1: 383-384].

God . . . adds to the essence of matter the qualities and perfections which he pleases, simple motion to some parts, but to plants vegetation, and to animals feeling. Those who agree up to this point, cry out as soon as I take one more step and say that God can give to matter thought, reason, will, as if this destroyed the essence of matter. But to prove it, they allege that thought or reason is not included in the essence of matter, a point of no consequence, since motion and life are not included in it either. They assert also that we cannot conceive that matter thinks; but our conception is not the measure of the power of God [LEIB1: 388-389].

Observing the exchanges between Locke and “the celebrated prelate who attacked him,” Leibniz genially commented, “I cannot but praise that modest piety of our celebrated author, which recognizes that God can do things beyond what we are able to understand, and that thus there may be inconceivable mysteries in the articles of faith; but I should not like to be obliged to resort to miracle in the ordinary course of nature, and to admit powers and operations absolutely inexplicable. Otherwise too much license will be given to bad philosophers, under cover of what God can do; and by admitting these *centripetal forces* or these *immediate attractions* from a distance, without its being possible to render them intelligible, I see nothing hindering our scholastics from saying that everything is done merely by their ‘faculties,’ and from maintaining their ‘intentional species’ which go from objects to us and find means of entering even into our souls. If this be so, *omnia jam fient, fieri quae posse negabam*” [LEIB1: 384-385].

The theory that substance is comprised of corpuscles is unacceptable, says Leibniz, because it is incapable of offering even the possibility of explaining the normal course of nature without a resort to occult qualities and miracles. Leibniz feels that what is needed is a theory of substance in which motion, attraction, and all the other natural phenomena is explicable from first principles. Furthermore, *mind is a part of nature* and therefore the elementary substance must also render

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<sup>2</sup> "All the things will presently happen which I said could not happen" (Ovid, *Triestia*).

mind explicable. Put another way, the theory of simple substances must provide the sufficient reason by which truths of fact are “so and not otherwise.”

This is what the theory of monads is supposed to accomplish. In a brief article published in 1714 [LEIB2: 533-552], Leibniz outlines ninety “points” which summarize his *Monadology*. Monads are simple substances (i.e., substances without any constituent parts) which form composites through *aggregation*. The sufficient reason for the existence of monads is based on two things: first, composites exist and therefore they must be composed of simpler parts; second, monads must be *simple* substances or else they, too, would be composed of more elementary parts. The monads are, therefore, “the true atoms of nature . . . and the elements of all things.”

But because monads can have no parts, “neither extension, nor figure, nor divisibility is possible” for them. Consequently, they cannot be corpuscles or even be ‘material’ atoms since to be “material” means to possess extension and figure. Thus, monads are “formal” atoms rather than “material” atoms. And because their very nature must provide the sufficient reason by which the dynamics of nature can be rendered explicable, the substance of a monad must consist of a “force.” Furthermore, since a thing can come into being only through composition (or go out of being only by decomposition), and since monads themselves are *not* composites, there can be no *natural* way for monads to come into or go out of existence. Instead, monads can only be *created* or *annihilated* by supernatural means (i.e., by God)<sup>3</sup>.

Up to this point, Leibniz’ monads are not too terribly different from the modern idea of subatomic particles<sup>4</sup>; it is from this point on where Leibniz’ theory begins to become objectionable in the eye of modern physics. In spite of their simplicity, monads must possess some sort of “qualities” or else, in Leibniz’ words, “they would not even be entities.” However, because they *are* simple substances, “there is no way of explaining how a monad can be altered or changed . . . by any other [monad], for nothing can be transposed within it, nor can there be conceived in it any internal movement that can be excited, directed, augmented, or diminished within it, as can be done in composites, where there is change among the parts. The monads have no windows through which anything can enter or depart. The accidents cannot detach themselves nor go about outside of substances . . . Thus neither substance nor accident can enter a monad from outside” [LEIB2: 533-534]. Put another way, although the essence of a monad is ‘force’, there is no way for this force to act as an outside agent affecting *other* monads. Each monad is a kind of self-contained universe unto itself. Simply because they *are* supposed to be simple

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<sup>3</sup> Leibniz has no intellectual problem with having *one* miracle start things off in the universe. He only objects to having to have more miracles required later on to *sustain* the universe.

<sup>4</sup> If we replace Leibniz’ “force” with the idea of “energy” and assume the universe to be a closed system, modern physics asserts that the total energy in the universe is conserved; hence, even the creation aspect of monads isn’t too far removed from the “Big Bang” theory of how the universe began.

substances, monads are incapable of interacting. This raises a significant problem, namely the problem of *communication* among monads.

So it is that monads must be presumed to be capable of undergoing “internal” change, but at the same time must be regarded as incapable of being either agents of change in other monads or patients affected by other monads. The first property, capability of internal change, requires what Leibniz called an *internal principle* and some sort of “individuating *detail of changes*” in order for ‘change’ to be a nonempty concept. What kind of ‘force’ could possess such properties?

Leibniz answers that the ‘force’ which constitutes a monad is a *living force* (*vis viva*). Every monad is, in some sense, alive, and its changeable internal state is called *perception* “which must be distinguished from apperception or consciousness” [LEIB2: 535]. Monads are supposed to be *unique* individuals; they differ from one another in terms of their different *degrees* to which they perceive *the universe as a whole*. The “human” class of monads is supposed to possess the highest degree of perception of all “creatures” (i.e., created monads); their perception extends to intelligence and reasoning power. The “internal principle which causes the change or passage from one perception to another” is called the monad’s *appetition*. Leibniz goes on to say

18. The name *entelechies* might be given to all simple substances or created monads, for they have within themselves a certain perfection; there is a certain sufficiency which makes them the source of their internal activities, and so to speak, incorporeal automata.

19. If we choose to give the name *soul* to everything that has *perceptions* and *desires* in the general sense which I have just explained, all simple substances or created monads may be called souls, but as feeling is something more than simple perception, I am willing that the general name of monads or entelechies shall suffice for those simple substances which have only perception, and that those substances only shall be called *souls* whose perception is more distinct and is accompanied by memory. [LEIB2: 536-537].

If monads did indeed have the vital force attributed to them by Leibniz, then he has solved the problem of the real existence of ideas and other mental phenomena that eluded the corpuscle theory (and he has placated the Bishop of Worcester). This theory of Leibniz is a departure, but a mild one, from the philosophy of St. Thomas, whose *Summa Theologica* had been declared to be the official doctrine of Catholic theology at the Council of Trent in 1546.

However, this view of monads is one of *pure idealism* and raises the problem of how monads could possibly describe the *corporeal world*. If communication among monads is impossible, how could *composites* exist? For the answer to this problem, Leibniz was forced to again accept the agency of God. Each monad perceives the whole of the universe, but only to that degree of clarity and distinctness that it possesses in its own nature. This is always a *finite* degree. God, on the other hand, knows and perceives everything to an absolutely perfect and infinite degree. Therefore, when God created the monads He also pre-established a *harmony* among them.



This idea of pre-established harmony can be looked at in a couple of different ways. First of all, the *effect* of pre-established harmony is that monads cooperate with each other through *purely ideal* influences rather than *physical* influences. These ideal influences are, in a sense, ‘virtual’ influences. Each monad senses everything that happens everywhere in the universe, but its own self-determined reaction to these perceptions is such that all monads everywhere act on themselves at all times so that each one’s representation of the universe (to the degree it is capable of making such a representation) is congruent (harmonious) with the representation of every other monad. The analogy often used to describe this is: suppose each monad were a clock; each of the infinite number of clocks (monads) in the universe keeps perfect time, and were created by God such that they are perfectly synchronized in their beginning *and remain so forever*. By contrast, if we apply this analogy to Descartes’ theory, God Himself must constantly intervene in order to keep all the clocks in the universe synchronized with each other.

Once created, no further intervention by God is required. The principle of pre-established harmony serves as a kind of primordial universal law that all natural beings (monads, individually and in aggregation) obey “by their very nature.” Even though the monads are not corporeal substances, the aggregation of monads in the natural world is *perceived* as corporeal or incorporeal (depending on whether the aggregation is “physical” or “mental” or “spiritual”) because of the nature of the monads themselves.

### Leibniz’ “Art of Discovery”

As strange as the theory of monads may seem, Leibniz reached this theory analytically from certain premises in his ontological metaphysics. If one accepts Leibniz’ ontological premises, one is led inevitably to his conclusion by entirely rational steps. Furthermore, he has accomplished what he set out to do, namely to propose a universal theory of nature in which God’s agency is not required other than to start things off. Since monads are the substances that comprise “nature”, they therefore belong to the world of “truths of fact.”

But how did Leibniz arrive at such a fantastic theory? To better understand his reasoning, we must take a look at how Leibniz viewed the rational process by which one establishes sufficient reason in regard to contingent truths of fact. Leibniz defined ‘wisdom’ as “perfect knowledge of the principles of all the sciences and of the art of applying them” [LEIB8: 77]. This involves what he called the *art of reasoning well* and the *art of discovery*.

The art of reasoning well consists of three maxims [LEIB8: 77-78]:

1. We must never recognize as true anything but what is manifestly indubitable. . . For we must avoid prejudices and attribute to things only what they include. But we must never be dogmatic.

## Chapter 1: First Prolegomenon

2. When there does not seem to be any means of arriving at such an assurance, we must be content with probability while waiting for greater light.
3. To derive one truth from another we must keep uninterruptedly to a certain chain. For as we may be sure that a chain will hold when we are sure that each separate ring is of sound material, and that it clasps the two neighboring rings . . . we may be sure the reasoning is sound, that is to say when it contains nothing doubtful, and when the form consists of a perpetual linking of truths with no gaps.

As for the art of discovery, this consists of 10 maxims [LEIB8: 78-80]:

1. In order to become acquainted with a thing we need to consider all of its prerequisites.
2. After we have found a means of distinguishing it from every other thing, we must apply this same rule to consideration of each condition or prerequisite entering into this means, and consider all the prerequisites of each prerequisite.
3. When we have pushed the analysis to the end, and finally have come to considering a few natures understood only by themselves without prerequisites, and needing nothing outside themselves to be conceived, then we have arrived at *perfect knowledge* of the proposed thing.
4. When the thing merits it, we must try to have this perfect knowledge present in our mind all at once, and this is done by repeating the analysis several times.
5. The mark of perfect knowledge is that nothing appears in the thing under consideration which cannot be accounted for, and that nothing is encountered whose occurrence cannot be predicted in advance.
6. We must always begin our inquiries with the easiest things, like the most general and simplest things.
7. We must ascend in order, both by going from easy to difficult things and by trying to discover some progression in the order of our thoughts for the sake of having nature itself as our guide and guarantee.
8. We must try to omit nothing in all our distinctions or enumerations.
9. The fruit of several analyses of different particular matters will be the catalogue of simple thoughts, or those that are not very far from being simple.
10. Having the catalogue of simple thoughts, we shall be ready to begin again *a priori* to explain the origin of things starting from their source in perfect order and from a combination or synthesis which is absolutely complete.

Needless to say, these seem good, sound maxims, but also seem frequently to be easier said than done. How did these apparently sound maxims lead to the theory of monads?

Let us look at this idea of the *simple substance*. Is the existence of some simple substance a concept of indubitable reality? It is certainly true (by definition) that composites must have parts. But what is the basis for knowing that there 'really' is a substance so simple that it contains no parts within it? It is, after all, the absolute simplicity of monads that led directly to their most peculiar properties. The idea of an absolutely elementary simple substance is not an established fact of nature, for no one, to this very day, has ever directly observed such a thing. God, of

course, is a candidate for the honor of being a simple substance since in Christian theology He is *Ego sum qui sum* (“I am who am”), or “the primary instance of being” [AQUI: Q. III, A. 1-8]. He is “the alpha and the omega” or “the beginning and the end.” However, God is not an object of science, but rather of faith.

Leibniz was guided (or, better, *regulated*) throughout by his principle of sufficient reason, and this principle required him to first establish “the limitations or variations . . . of a constant and absolute original nature” [LEIB1: 390]. But this forces him to establish at the very beginning what is to be viewed as originally fundamental and forbids him to explore things merely as phenomena, reserving to the future the sorting out of primordial causes of complex effects. Leibniz (and his contemporaries) wished to proceed *analytically* and *deductively*. This is quite fine when one knows the ground one stands upon is firm and solid. But what criteria are required to establish this judgment of one’s grounds?

The topic of investigation in Leibniz’ *New Essays* is mind, but his starting point had only an indirect connection with the phenomenon he wished to explain. Now, in order to have a science which is fecund in its ability to make predictions, and not be merely correlative, we certainly must have first principles. But where do first principles come from? They do not come from empirical data, because such data never explain themselves. Rather, first principles always arise from a process of abstraction which operates on established facts for the purpose of discovering some common ground from which established facts follow necessarily as a consequence of given conditions or limitations. When we are dealing with the phenomenon of mind, we must begin our search for this common ground close to those facts we know (or believe we know) about this *particular* phenomenon. To seek for some “constant and original nature” common to everything is to presume that we can distinguish what is *necessarily* common to all things before we have studied all things. The particular phenomenon might perhaps exhibit features and traits so different from our previous experiences, from which our initial idea of what is absolutely original came, that our idea of original nature exhibits no such necessary connection to it.

This is, I think, the lesson from Leibniz: that it is a fundamental error to believe one has an objectively valid idea of what is absolutely original in nature. The practice of science is not like building a house, which begins by digging a foundation and builds up from there. Building a science is more like putting together a jigsaw puzzle, where pieces of the puzzle may float unconnected from each other for a very long time before the connecting pieces are found. The new study of a phenomenon should begin locally and build out to other branches of knowledge.

### **§ 5.5 Theme III: Mind is a Soul or Spirit, Having the Power of Cognition and Action**

The rationalist view of mind discussed in the previous section may be seen as one extreme line of thought that developed in the seventeenth century. At the other end of the spectrum we find

British empiricism, which developed concurrently with and more or less independently of seventeenth century rationalism. Both the rationalists and the empiricists see mind as soul, but they differ greatly from that point on. In rationalism, the mind is a very active faculty which, through its possession of “innate ideas”, operates on the “data of sensation” to create concepts, ideas, and so on, and does so to such a degree that the material world itself tends to disappear (as we saw in the case of Leibniz). Empiricism, on the other hand, assigns to mind a somewhat more passive role. The existence of “innate ideas” is denied, and the mind becomes more or less a vessel for thoughts and ideas. The mind is a kind of “white paper” on which “simple ideas” are written by experience provided to it by sensation [LOCK: 121]. “Complex ideas” are merely associations formed among the simple ideas of experience.

Empiricism attempts to remain rooted in the material world, and would be happy to become a philosophy of “brain” rather than “mind” if it could do so. The difficulty with doing this, however, is that it requires “matter” to somehow be capable of thinking, and the British empiricists cannot conceive how this could be possible. Therefore, this tricky point is overcome by the simple expedient of turning the problem over to the immaterial soul, which is, in a way, used as a deposit vault for unexplainable mysteries<sup>1</sup>. Empiricism finds itself tending to become psychology and, ironically enough, cannot seem to avoid ending up either as a form of idealism, although of a different sort of idealism than is attained by the rationalists, or as sensationalism and skepticism.

It can be said with some justification that the main difference between the rationalists and the empiricists is one of focus. The rationalist tends to quickly become concerned with what mind *is* and with what the properties of mind-in-itself may be. The empiricist tends to be more concerned with what mind *does* and how it works without troubling overmuch on what mind may *be* (although Berkeley can be seen as an exception to this characterization). It would not be too far off the mark to say that rationalism concerns mind as a *thing*, while empiricism is concerned about what *ideas* are as mental “entities” or things. Another possible, though loose, analogy is to say that the rationalist is like the physicist who wishes to find the fundamental theory of mind, while the empiricist is like the chemist who wishes to observe, describe, catalog, and organize the manifestations (ideas) of mind.

Another difference between the British empiricists and the rationalists can be found in the backgrounds of the men who were the most influential figures in each camp. Among the rationalists we find Descartes and Leibniz, men who were first-rate mathematicians and scientists

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<sup>1</sup> Although it is something of an oversimplification, one could regard the difference between the materialists and the idealist empiricists as being this: the former chooses to more or less ignore the problem, demands that “soul” be material rather than spiritual, and assumes that the problem of “thinking matter” will be figured out some day; the latter is concerned with the magnitude of the problem, does not want to reduce “soul” to atoms, and tries to maintain a place for it in “reality.”

as well as philosophers (and who founded philosophical *systems* that others built on or amended). The leading empiricists were not primarily scientists or mathematicians, although they certainly were “men of letters.” John Locke (1632-1704) was a physician and political philosopher, served under Lord Ashley as secretary of the council of trade, and dabbled in chemistry and meteorology. Robert Boyle was his close friend and, upon Boyle’s death, Locke edited Boyle’s *General History of the Air*. George Berkeley (1685-1753) was an Anglican deacon and became Bishop of Cloyne in Ireland in 1734. Berkeley was learned in mathematics, though not a mathematician, and was a leading critic of the infinitesimal calculus of Newton and Leibniz. David Hume (1711-1776) was a philosopher, historian, and essayist whose views on religion were sufficiently unacceptable to prevent him from being able to obtain an appointment to any university position. Hume was a leading figure in the Enlightenment and the most thoroughgoing and influential naturalist<sup>2</sup> of modern philosophy.

Just as Descartes and Leibniz represent two polar extremes within rationalist thought, Locke, Berkeley, and Hume represent three more or less unique positions within empiricism. These positions, respectively, may be called *representationalism*<sup>3</sup>, *subjective idealism*, and *sensationalism*. Let us look at each of these in turn.

### Representationalism

Locke is probably the most influential of the British empiricists from the standpoint that it was his leadership that made empiricism more or less come to dominate eighteenth century thought. Locke begins by attacking the supposition that the mind contains “innate” principles, truths, or ideas.

It is an established opinion amongst some men that there are in the understanding certain *innate principles* . . . as it were stamped upon the mind of man; which the soul receives in its very first being, and brings into the world with it. It would be sufficient to convince unprejudiced readers of the falseness of this supposition, if I could only show (as I hope I shall in the following parts of this Discourse) how men, barely by the use of their natural faculties, may attain to all the knowledge they have, without the help of any innate impressions; and may arrive at certainty, without any such original notions or principles. . .

But because a man is not permitted without censure to follow his own thoughts in the search of truth, when they lead him even so little out of the common road, I shall set down the reasons that have made me doubt the truth of that opinion . . .

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<sup>2</sup> Hume's naturalism sets him apart from the other empiricists in that he is the only one of these men whose theory of mind does *not* involve the notion of soul. Hume regards mind as simply a word we use to refer to the *fact* that something called "cognition" does take place, but he remains skeptical of and uncommitted to any view that attempts to explain *what* it is that thinks. In this, he is the most "pure" empiricist of this group.

<sup>3</sup> Technically, we should call Locke's philosophy *empirical* representationalism since the Cartesian philosopher Malebranche was a proponent of a line of rationalist thought that can be properly called rational representationalism.

There is nothing more commonly taken for granted than that there are certain *principles* . . . universally agreed to by all mankind . . . This argument, drawn from universal consent, has this misfortune in it, that if it were true in matter of fact, that there were certain truths wherein all mankind agreed, it would not prove them innate, if there can be any other way shown how men may come to that universal agreement . . .

But, which is worse, this argument of universal consent . . . seems to me a demonstration that there are none such: because there are none to which all mankind gives universal assent. . . I shall begin with the speculative, and instance in those magnified principles of demonstration, "Whatsoever is, is," and "It is impossible for the same thing to be and not to be"; which, of all others, I think have the most allowed title to innate. . . But yet I take liberty to say, that these propositions are so far from having an universal assent, that there are a great part of mankind to whom they are not known as such. . .

For, first, it is evident, that all children and idiots have not the least apprehension or thought of them. And the want of that is enough to destroy that universal assent which must needs be necessary concomitant of all innate truths: it seeming to me near a contradiction to say, that there are truths imprinted on the soul, which it perceives or understands not: imprinting, if it signify anything, being nothing else but the making certain truths to be perceived [LOCK: 95-96].

In his *Essay Concerning Human Understanding* [LOCK], Locke defines the "idea" as "the object of thinking." The examples he gives include whiteness, hardness, thinking, motion, man, elephant, army, and drunkenness [LOCK: 121]. The mind itself contains no "original" or "innate" ideas, in this sense of the word, but *is* capable of performing "operations" on ideas. Ideas are the materials to which the mind applies these operations, but the mind neither adds to, nor takes away from, these materials. As we will see presently, Locke's theory is analogous to a chemistry laboratory. The ideas are like the chemicals themselves; the operations of the mind are like the test tubes, beakers, Bunsen burners, etc. that the chemist uses to produce chemical reactions. Just as the test tube or the Bunsen burner make these reactions possible without actually adding to or subtracting from the chemicals themselves, so the mind makes possible the composition of "complex" ideas from "simple" ones without itself adding or subtracting "material" of its own.

All ideas, said Locke, come either from *sensation* or *reflection*. Locke defines sensation as "such an impression or motion made in some part of the body, as produces some perception in the understanding" [LOCK: 127]. Sensation provides *simple* ideas such as "yellow, white, heat, cold, soft, hard, bitter, sweet" [LOCK: 121]. A simple idea is an "uncompounded appearance" that cannot be divided into more primitive ideas. The mind can neither create nor destroy simple ideas; a simple idea is therefore like a kind of mental atom.

Reflection, on the other hand, is a kind of *inner sense* of our consciousness of the operations of the mind "which we being conscious of, and observing in ourselves, do from these receive into our understanding as distinct ideas as we do from bodies affecting our senses . . . though it be not sense . . . yet it is very much like sense, and might properly enough be called *inner sense*" [LOCK: 121-122]. The "operations of the mind" of which inner sense makes us aware include perception, thinking, doubting, believing, passions, reasoning, knowing, willing, etc.

Simple ideas can be obtained either from sensation or from reflection. Taken together, these simple ideas constitute *experience*, either as experience of external objects or as experience of the mind in operation. In Locke's view, neither sensation nor the consciousness of our own mental activities (inner sense, i.e., reflection) is part of the mind. Mind consists only of operations. While mind itself contains no innate ideas, it has the interesting power of affecting the inner sense of reflection, which in its turn acts to impress the mind with simple ideas. Thus, while the mind has no ideas of its own, its activities can be the efficient cause of simple ideas of reflection.

We see here at least the appearance of a contradiction. On the one hand, Locke denies the mind the power to create or destroy simple ideas. On the other hand, mental activity can be "sensed" (by the inner sense) and this "reflection" *does* produce simple ideas. Contradiction or not, the origination of simple ideas by "reflection" is vital to Locke's theory, for it is from these simple ideas of reflection that ideas of *relation* (cause, effect, identity, diversity, spatial relations, duration, etc.) arise.

Locke says very little about the 'nature' of ideas of reflection. However, since "inner sense" is "very much like sensation" it is not unreasonable to suppose that he saw reflection as taking place in a manner similar to (or at least analogous to) the process he describes for sensation. In his view, sensation is produced as a consequence of "motions" in the body "agitated by external objects"; this motion is passed on, through the body, to the brain, which is the "seat of sensation" [LOCK: 135]. The "motion of the brain", in turn, produces sensation by somehow or other causing "modes of motion in our animal spirit" [LOCK: 133]. Sensation "impresses" these "modes of motion" in the "animal spirit" in the mind as simple ideas. Locke confesses "without shame" that he has no idea whatsoever of how such a thing takes place.

The implication, which Locke does not make explicit in his *Essay*, is that mental activity must likewise produce "motion" in the "animal spirit" which is passed back as "brain motion" or is in some other way "reflected" (prior to producing brain motion?) back on the mind as an impression. If something like this was what Locke actually had in mind, it is an arrangement that allows ideas to remain "the objects of thinking" and permits the mind to remain void of "innate ideas."

Complex ideas are "made by the mind out of simple" ideas [LOCK: 147]. The mind is "wholly passive" in its reception of simple ideas, but takes an active role in composing simple ideas into complex ones. The analogy which obviously suggests itself to the reader is that simple ideas are like atoms and a complex idea consists of mental atoms arranged into a kind of mental molecule. This composition is made voluntarily by the mind, rather than taking place through some random "collision" of mental atoms. Here we see the mind acting like a kind of spiritual chemist (the will) who uses his chemical apparatus (the "operations" of the mind) to produce a desired product (a complex idea).

Locke calls “the first simple idea of reflection” a *perception*. The mind is capable of ignoring sensations, when it is concentrating elsewhere, and so perception “in sensation” arises only when the mind “notices” the “organic” impression. Perception is “the inlet of all materials of knowledge” [LOCK: 141] and is the first “step and degree toward knowledge.” Perception is the first operation of the intellectual faculty. The next “faculty of the mind” is *retention*, which takes place either as *contemplation* (when the mind keeps the simple idea present in sensation or in inner sense) or as *memory*. Retention in general is “the keeping of those simple ideas which from sensation or reflection [the mind] hath received” [LOCK: 141]. Attention, repetition, pleasure and pain serve to “fix” ideas in retention. With regard to memory, Locke notes that memory has two particular “defects”: loss of ideas (forgetting) and slowness in retrieving ideas. He writes, “the pictures drawn on our mind are laid in fading colors.” He offers the observation that “the constitution of the body does sometimes influence the memory” [LOCK: 142], but he attempts to offer no theory for why this is so. His description of the memory as slow and as something that “loses” the simple ideas makes memory sound rather like a lazy and careless stockroom clerk who frequently mislays the chemicals.

In addition to the faculties for perception and retention, Locke identifies several other operations of the mind. These include *discernment*, *wit*, *judgment*, *comparing*, *naming* (the use of “signs” to “signify” other ideas), and *abstraction*. The ideas produced from these operations fall into three general classes: modes, substances, and relations. Among the “modes” he names space, duration, number, infinity, modes of thinking, pleasure and pain, and power. Substances are “made” (i.e., are complex ideas) either of “particular things” or of “general” substance. The latter, he says, is an “obscure” idea<sup>4</sup>. Among the relations, he names cause, effect, identity, diversity, and several kinds of “spatial” and “temporal” relations such as extension.

We may offer a few comments on Locke’s theory. First of all, let us note the “atomic” nature of this theory. It is fortunate indeed that “reflection” can produce an apparently unlimited number of simple ideas or else the composition of simple ideas *into* complex ones would soon “empty the stockroom” of materials (since simple ideas are neither created nor destroyed by the mind). One can also wonder what becomes of the “lost” ideas that memory misplaces.

This “atomic” view of ideas raises certain other questions. When two ideas are combined into a more complex idea, do the constituent parts that went into this “lose” their individual identities? When complex ideas are broken down and recombined to produce an “abstract” idea, do we lose the complex ideas that supplied the “atoms and molecules” to the abstract idea? It is certain that the mind does not produce “copies” of its ideas, for it cannot create or destroy the

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<sup>4</sup> General substance, according to Locke, is merely the idea of something needed to ‘support’ other ideas of accidents. It gives accidents something to inhere in. Hence it is an idea of relation but we do not know what it is ontologically.



simple ideas which form the complex ones. Nor does it copy them “through reflection” since reflection produces only simple ideas of the “inner sense” that arise from awareness of the mental *operations*. Locke is very clear that “ideas” and “operations” are two very distinct things in his theory. Although “simple ideas of relations” can be produced through inner sense, what binds these ideas of relations to the ideas they relate? Locke is clear that the relational ideas are quite distinct from the ideas they relate [LOCK: 215-216], and he also says an idea of relation is made by the operation of “bringing two ideas, whether simple or complex, together, and setting them by one another, so as to take a view of them at once, without uniting them into one” [LOCK: 147]. But if the related ideas remain distinct, how are they joined with the relational idea when the related ideas themselves cannot be copied by the inner sense? One could say that the relation and the related are joined by *association*, but if we take this viewpoint, association must then be given a place among the “operations” of the mind, rather as if it were a kind of mental “ionic bond.” But can we do this without, at the same time, making such a “bond” a *part* of an idea?

These seeming inconsistencies, and others, in Locke’s theory are usually pounced on with great eagerness by the rationalists. Locke’s theory contains a number of very interesting ideas, but doesn’t seem to hold together with global consistency. The contrast between Locke and Leibniz is a fascinating one. In Leibniz, we find a perfectly consistent theory (provided we accept his starting premises) that yields a result so fantastic that it defies belief. In Locke we have a theory that, in its beginnings, is more or less comfortably intuitive and believable, but which falls apart through apparently fundamental contradictions. This comparison is one we will return to later in this treatise. For the present, let us move on to the other empirical viewpoints.

### Subjective Idealism

Berkeley’s philosophy has its starting point with Locke. However, unlike Locke, Berkeley had a much more intense preoccupation with metaphysical questions than did his predecessor and there were certain aspects of Locke’s philosophy that he found unsatisfactory. His solution to these questions produced one of the most extreme forms of idealism ever known.

Locke defined the *quality* of a body as “the power to produce any idea in our mind” [LOCK: 134]. He classified these qualities into two types. *Primary* qualities are qualities which are a part of the body itself and can never be separated from the body. The primary qualities he identified were solidity, extension, motion or rest, and number. It is worthwhile for us to note that these are the same “qualities” that characterize one of Boyle’s corpuscles.

*Secondary* qualities may appear to “belong” to the body but, in fact, do not. They include such attributes as color, sound, and taste. These secondary qualities are merely the power to produce certain sensations in us, but they are not ‘real’ in the sense that primary qualities are real.

The significance of this distinction is an important one for Locke. Certainty, i.e. knowledge in the absolute sense, can be obtained only through the clear perception of agreement or disagreement between pairs of ideas. If this certainty can be achieved directly in the comparison of two ideas, we have what Locke calls *intuitive knowledge* [LOCK: 309]. However, it is often the case that such certainty cannot be immediately obtained. In this case, certainty must be *demonstrated* through reason by the intervention of other ideas. But the secondary qualities of things are not discoverable through demonstration [LOCK: 312] and, consequently, it is in the primary qualities that we can discover demonstrable certainties. And since our sensations do not always deliver a clear idea of even primary qualities, the extent of our certain knowledge is much less than the extent of all of our ideas. This is an issue that Locke treats at length in the latter half of the *Essay*.

This issue comes to a head particularly with regard to knowledge of existence. Locke maintains that we have a threefold knowledge of existence [LOCK: 349-358]. We know of our own existence through intuition; we know of the existence of God by demonstration; and we know of the existence of other things through sensation. But all our general propositions that are known to be true concern abstract ideas, i.e. “universal” ideas [LOCK: 358].

This is where Berkeley’s objections begin. Berkeley argues

It is, I know, a point much insisted on, that all knowledge and demonstration are about universal notions, to which I fully agree: but then it doth not appear to me that those notions are formed by abstraction in the manner presumed - *universality*, so far as I can comprehend, not consisting in the absolute, positive nature or conception of anything, but in the relation it bears to the particulars signified or represented by it; by virtue whereof it is that things, names, or notions, being in their own nature *particular*, are rendered *universal* [BERK: 409].

A “universal” thing, Berkeley argues, does not really exist. The notion of a universal thing is always nothing more than a description of a finite number of particular things, and never a thing in its own right.

As innocent a statement as this is, it is the starting point for a much larger problem. The basis for certainty in our knowledge of the existence of external objects is sensation. The connection of an idea of sensation to the real existence of bodies requires abstraction to prove. But Berkeley has argued that there is no such thing as abstraction in the “universal” manner required of it in order for it to constitute *proof*. Berkeley then dares to ask: Why is the existence of external *material* objects made certain by sensation? What we know is the idea given to the mind by sensation. Now, Locke himself divided the qualities of bodies into primary and secondary qualities. The latter qualities are not real attributes of the body, but merely the ability of the body to affect sensation in such a way as to produce the idea. But if what is represented by such an idea is not real, why should we be certain that ideas produced by primary qualities are

real?

Some there are who make a distinction between *primary* and *secondary* qualities. By the former they mean extension, figure, motion, rest, solidity or impenetrability, and number; by the latter they denote all other sensible qualities, as colors, sounds, tastes, and so forth. The ideas we have of these they acknowledge not to be the resemblances of anything existing without the mind, or unperceived, but they will have our ideas of the primary qualities to be patterns or images of things which exist without the mind, in an unthinking substance they call Matter. By Matter, therefore, we are to understand an inert, senseless substance, in which extension, figure and motion do actually subsist. But it is evident from what we have already shown, that extension, figure, and motion are only ideas existing in the mind, and that an idea can be like nothing but another idea, and that consequently neither they nor their archetypes can exist in an unperceiving substance. Hence, it is plain that the very notion of what is called *Matter* or *corporeal substance* involves a contradiction in it [BERK: 414].

Berkeley argues that the “material” world, involving as it does such a contradiction, does not really exist. The entire material world is nothing other than a representation or perception of the mind. The only thing that exists in reality is the spiritual Self, of which we are certain by intuition, and God, from whom we get the regularity of our “material” ideas. In other words, God creates the material world for us, but He creates it only in our mind. “Material substance” does not itself make its way into our mind through the senses; rather, it “exhausts itself” in sensation. To Berkeley, essence *is* perception (*esse est percipi*). Real existence is only to be found in spirits and in God: “We live, move, and exist in God.”

Inasmuch as Berkeley renders science moot by doing away with its object, the material world, we need spend no additional time with his theory of mind here. But he will come up again.

### Hume’s Skepticism

Hume’s *A Treatise of Human Nature*, published in 1739, carries empiricism to its ultimate consequence. He begins with Locke’s system, but the certainties and truths that Locke took such pains to establish quickly become the victims of Hume’s analysis. Substance, cause and effect, and even the knowledge of self-existence come under an attack that empiricism is unable to withstand. Berkeley did away with the material world; Hume does away with the spiritual world as well, and mind becomes nothing more than the impressions, perceptions, ideas, desires, and feelings cleaving to consciousness at any given moment. Hume’s skepticism is so extreme and complete that the wits of that era dismissed both he and Berkeley with the quip, “No matter, never mind.”

The notion of cause and effect is one of Hume’s first victims.

To begin with the first question concerning the necessity of a cause: 'Tis a general maxim in philosophy, that *whatever begins to exist, must have a cause of existence*. This is commonly taken

for granted in all reasonings, without any proof given or demanded. 'Tis suppos'd to be founded on intuition, and to be one of those maxims, which tho' they may be denied with the lips, 'tis impossible for men in their hearts really to doubt of. But if we examine this maxim by the idea of knowledge above-explained, we shall discover in it no mark of any such intuitive certainty; but on the contrary shall find, that 'tis of a nature quite foreign to that species of conviction.

All certainty arises from the comparison of ideas, and from the discovery of such relations as are unalterable, so long as the ideas continue the same. These relations are *resemblance, proportions in quantity and number, degrees of any quality, and contrariety*; none of which are imply'd in this proposition, *Whatever has a beginning has also a cause of existence*. . .

But here is an argument, which proves at once, that the foregoing proposition is neither intuitively nor demonstrably certain. We can never demonstrate the necessity of a cause to every new existence, or new modifications of existence, without shewing at the same time the impossibility there is, that any thing can ever begin to exist without some productive principle; and where the latter proposition cannot be prov'd, we must despair of ever being able to prove the former. . . The separation, therefore, of the idea of a cause from that of a beginning of existence, is plainly possible for the imagination; and consequently the actual separation of these objects is so far possible, that it implies no contradiction or absurdity; and is therefore incapable of being refuted by any reasoning from mere ideas; and without which 'tis impossible to demonstrate the necessity of a cause [HUME1: 78-80].

The possibility of science depends upon the premise: given exactly the same circumstances each time, the same consequences will follow<sup>1</sup>. This is nothing other than a different way of stating the principle of cause and effect. Hume tells us that this premise is itself uncertain and its truth is an illusion. Therefore, science is unable to speak with *certain* authority about anything.

Like Berkeley, Hume also attacks the notion of the existence of corporeal entities. The mind does not immediately know *things*; it knows perceptions and ideas from which it infers the existence of objects of perception. This, however, implies a kind of “double existence” for a thing, first as a thing-in-itself and second as a thing of impression. But is this inference valid?

Thus the sceptic still continues to reason and believe, even tho' he asserts, that he cannot defend his reason by reason; and by the same rule he must assent to the principle concerning the existence of body, tho' he cannot pretend by any arguments of philosophy to maintain its veracity. Nature has not left this to his choice, and has doubtless esteem'd it an affair of too great importance to be trusted to our uncertain reasonings and speculations. We may well ask, *What causes induce us to believe in the existence of body?* but 'tis in vain to ask, *Whether there be body or not?* That is a point we must take for granted in all our reasonings. . .

That our senses offer not their impressions as the images of something *distinct, or independent, and external* is evident; because they convey to us nothing but a single perception, and never give us the least intimation of any thing beyond. A single impression can never produce the idea of a double existence, but by some inference either of the reason or imagination. When the mind looks farther than what immediately appears to it, its conclusions can never be put to the account of the senses; and it certainly looks farther, when from a single perception it infers a double existence, and supposes the relations of resemblance and causation betwixt them.

If our senses, therefore, suggest any idea of distinct existences, they must convey the impressions as those very existences, by a kind of fallacy and illusion. [HUME1: 187-189].

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<sup>1</sup> In quantum physics, it is theoretically impossible to know "the circumstances" *precisely*. Therefore, the cause and effect principle is framed statistically: given the same circumstances, the same consequences will follow *on the average*. This is a consequence of the famous Heisenberg Uncertainty Principle, however, and not a refutation of the principle of cause and effect.

The data of the senses is empirical, and empirical knowledge is always contingent. It carries with it no warranty or guarantee of anything beyond or above what it gives to us immediately. Under the Lockean system, all the knowledge of the mind must come to it from experience and all knowledge of the external world can come in only via the senses. The only things we can be certain of are those simple ideas given immediately by sensation or reflection. Thus, Hume argues, I cannot know that the tree I see outside my window is still there when I am not looking at it.

'Tis certain, that almost all mankind, and even philosophers themselves, for the greatest part of their lives, take their perceptions to be their only objects, and suppose, that the very being, which is intimately present to the mind, is the real body or material existence. 'Tis also certain, that this very perception or object is suppos'd to have a continu'd uninterrupted being, and neither to be annihilated by our absence, nor to be brought into existence by our presence. When we are absent from it, we say it still exists, but that we do not feel, we do not see it. When we are present, we say we feel it or see it. Here then may arise two questions: *First*, How we can satisfy ourselves in supposing a perception to be absent from the mind without being annihilated. *Secondly*, After what manner we conceive an object to become present to the mind, without some new creation of a perception or image; and what we mean by this *seeing*, and *feeling*, and *perceiving*.

As to the first question; we may observe, that what we call a *mind*, is nothing but a heap or collection of different perceptions, united together by certain relations, and suppos'd, tho' falsely, to be endowed with a perfect simplicity and identity. . . 'Tis indeed evident, that as the vulgar *suppose* their perceptions to be their only objects, and at the same time *believe* the continu'd existence of matter, we must account for the origin of the belief upon that supposition. Now upon that supposition, 'tis a false opinion that any of our objects, or perceptions, are identically the same after an interruption; and consequently the opinion of their identity can never arise from reason, but must arise from an imagination. The imagination is seduc'd into such an opinion only by means of the resemblance of certain perceptions; since we find they are only our resembling perceptions, which we have a propensity to suppose the same. This propensity to bestow an identity on our resembling perceptions, produces the fiction of a continu'd existence; since that fiction, as well as the identity, is really false, as is acknowledg'd by all philosophers, and has no other effect than to remedy the interruption of our perceptions, which is the only circumstance that is contrary to their identity. . .

But tho' we are led after this manner, by the natural propensity of the imagination, to ascribe a continu'd existence to those sensible objects or perceptions which we find to resemble each other in their interrupted appearance; yet a very little reflection and philosophy is sufficient to make us perceive the fallacy of that opinion. . . when we compare experiments, and reason a little upon them, we quickly perceive, that the doctrine of the independent existence of our sensible perceptions is contrary to the plainest experience. This leads us backward upon our footsteps to perceive the error in attributing a continu'd existence to our perceptions, and is the origin of many very curious opinions, which we shall here endeavor to account for [HUME1: 206-210].

The excerpt just quoted does, of course, omit several pages of Hume's dialectic argument that leads him to his skeptical conclusion about the actual existence of the material world. He attacks the material world from a different direction than Berkeley, but ends up at the same point (which he phrases less strenuously than Berkeley): Our certainty in the actual existence of the material world is an illusion, and this world may not exist at all, and almost surely does *not* exist in the way we perceive it. Berkeley flatly denies the existence of the material world, but Hume's

same argument would also argue that we cannot know *that* for certain either.

Although Berkeley takes away our material substance, he at least leaves us with the comfortable certainty of our own existence as spiritual substance. Hume is not so generous, as his characterization of the mind as a “heap or collection” of different perceptions warns us.

There are some philosophers, who imagine we are every moment intimately conscious of what we call our Self; that we feel its existence and its continuance in existence; and are certain, beyond the evidence of a demonstration, both of its perfect identity and simplicity. . .

Unluckily, all these positive assertions are contrary to that very experience, which is pleaded for them, nor have we any idea of *self*, after the manner it is here explain'd. For from what impression cou'd this idea be deriv'd? This question 'tis impossible to answer without a manifest contradiction and absurdity; and yet 'tis a question, which must necessarily be answer'd, if we wou'd have the idea of self pass for clear and intelligible. It must be some one impression, that gives rise to every real idea. But self or person is not any one impression, but that to which our several impressions and ideas are suppos'd to have a reference. If any impression gives rise to the idea of self, that impression must continue invariably the same, thro' the whole course of our lives; since self is suppos'd to exist after that manner. But there is no impression constant and invariable. . .

For my part, when I enter most intimately into what I call *myself*, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch *myself* at any time without a perception, and never can observe anything but the perception. When my perceptions are remov'd for any time, as by sound sleep; so long am I insensible of *myself*, and may truly be said not to exist. And were all my perceptions remov'd by death, and cou'd I neither think, nor feel, nor see, nor love, nor hate after the dissolution of my body, I shou'd be entirely annihilated, nor do I conceive what is farther requisite to make me a perfect non-entity. If any one upon serious and unprejudic'd reflexion, thinks he has a different notion of *himself*, I must confess I can reason no longer with him. All I can allow him is, that he may be in the right as well as I, and that we are essentially different in this particular. . .

The mind is a kind of theatre, where several perceptions successively make their appearance, pass, re-pass, glide away, and mingle in an infinite variety of postures and situations. There is properly no *simplicity* in it at one time, nor *identity* in different; whatever natural propension we may have to imagine that simplicity and identity. The comparison of the theatre must not mislead us. They are the successive perceptions only, that constitute the mind; nor have we the most distant notion of the place, where these scenes are represented, or of the materials, of which it is compos'd. [HUME1: 251-253].

It would have been greatly interesting if we could have heard Descartes and Hume argue this point. Descartes argued from logic that he could not doubt the existence of his own Self; Hume argued that Descartes could not know that this Self was actually *one* entity and not just a heap of perceptions (although Hume seems not to explain who or what *has* these perceptions if not a Self). At one blow, Hume annihilates certainty in science, in a material world, and in a spiritual world. Hume questions the reality of everything except direct sensation and perception, and finds that this knowledge has no certain extension beyond the moment. His point is not so much that these things actually do *not* exist; it is that we have no certain knowledge of anything, including his own philosophy. In the end, his victim is philosophy itself. But, unlike other philosophers of his era, he refuses to find comfort in a retreat to faith and religion.

Since therefore 'tis impossible for the mind of man to rest . . . we ought only to deliberate concerning the choice of our guide, and ought to prefer that which is safest and most agreeable. And in this respect I make bold to recommend philosophy, and shall not scruple to give it the preference to superstition of every kind or denomination. For as superstition arises naturally and easily from the popular opinions of mankind, it seizes more strongly on the mind, and is often able to disturb us in the conduct of our lives and actions. Philosophy on the contrary, if just, can present us only with mild and moderate sentiments; and if false and extravagant, its opinions are merely the objects of a cold and general speculation, and seldom go so far as to interrupt the course of our natural propensities. . . Generally speaking, the errors in religion are dangerous; those in philosophy only ridiculous. [HUME1: 271-272].

## § 5.6 Two Other Rationalist Themes

Before summarizing and comparing the theories of mind emerging from the rationalist and empiricist perspectives, there are two more rationalist themes that deserve brief mention. These themes are of interest as examples of how the rationalist logic stemming from innate ideas, without the admission of empirical knowledge, can nonetheless end up in surprising proximity to an empiricist theory.

### Theme IV: Mind as a Particular Mode of God's Thought

We have seen that Leibniz' presupposition of "simple" substances led him to the "pluralist" theory of monads, which built the entire universe from "soul-possessing" immaterial "atoms." However, the notion of a "simple" substance is by no means the *only* hypothesis of "what substance *is*." From Aristotle's "primary substratum" to Plotinus' "primal matter" to Augustine's "formless matter" to Aquinas' "prime matter", the notion of "substance" has taken many forms. The notion of simple substance, in fact, has roots much closer to the atomism of Lucretius than to the metaphysics of Aristotle.

Benedict de Spinoza (1632-1677) was a follower of Descartes' philosophy, but he found the Cartesian dualism of the *res cogitans* and the *res extensa* troubling. In Descartes' system the connection between body and mind depends on God. The problem of communication between the corporeal and the non-corporeal substances seems to require God's constant intervention to keep these two utterly different "substances" in synchronization with each other. In one commonly used analogy, if *res cogitans* and *res extensa* were two different clocks, it would be up to God to make sure they stayed wound and He would have to continually adjust them to keep them both showing the same time. By contrast, Leibniz would fill the universe with an infinity of clocks, and these clocks would remain forever synchronized because pre-established harmony would mean their construction was perfect and no adjustment would ever be needed.

Spinoza accepts Descartes' view that substance is "that which needs nothing else for its own existence" but he examines the implications of this more critically than Descartes. For Spinoza there is only one thing which needs nothing else for its own existence, and this thing is God. Starting from this perspective of substance, and using a small set of other axioms, Spinoza develops his theory "Of the Nature and Origin of the Mind" [SPIN: 373-394].

Spinoza concludes that the plurality of substances which Descartes assumed is necessarily a contradiction. There is only *one* absolutely infinite substance, and this substance is presupposed by any given finite reality. Almost as if he were writing a geometry textbook, Spinoza develops a number of propositions and theorems. Among them we find: 1) Thought is an attribute of God, or God is a thinking thing. 2) Extension is an attribute of God, or God is an extended thing. 3) In God there necessarily exists the idea of His essence, and of all things which necessarily follow from His essence. 4) The idea of God, from which infinite numbers of things follow in infinite ways, can be one only. 5) The formal Being of ideas recognizes God for its cause in so far only as He is considered as a thinking thing, and not in so far as He is manifest by any other attribute. 6) The modes of any attribute have God for a cause only in so far as He is considered under that attribute of which they are modes, and not in so far as He is considered under any other attribute. 11) The first thing which forms the actual Being of the human mind is nothing else than the idea of an individual thing actually existing. 15) The idea which constitutes the formal Being of the human mind is not simple, but is composed of a number of ideas. 45) Every idea of any body or actually existing individual thing necessarily involves the eternal and infinite essence of God [SPIN: 373-390].

There are, of course, many other propositions, lemmas, and so on in Spinoza's work, but for our purposes here the main point is that the human mind is an attribute of the mind of God, and human thoughts are an attribute of the thoughts of God. The Cartesian problem of dualism disappears (through several other propositions of Spinoza) because all "body" substances are attributes of the substance of God, and the union of mind and body is likewise an attribute of God. To use our clock analogy again, there is only *one* clock in the universe; it has many faces, but remains synchronized because all of these clock faces are but a part of the same clock.

There is a certain degree of similarity between Spinoza's system and that of Berkeley (and, of course, a number of fundamental differences as well). Spinoza's theory was radical enough to get him excommunicated from his synagogue, deemed a heretic, and "cursed with all the curses of the firmament." More interesting still is the unproved assertion by some that Leibniz' monad theory was inspired by Spinoza's theory and that only Leibniz' reluctance to share Spinoza's fate kept him from openly connecting his monad theory with Spinoza's doctrine.



Theme V: Mind as Self-Consciousness, Knowing Itself as Universal

Our last rationalist theme is usually not characterized as rationalism but, rather, as “objective idealism.” Georg Wilhelm Friedrich Hegel (1770-1831) was the last of a line of philosophers that began with Immanuel Kant and whose works are collectively referred to as “German Idealism.” Kant’s theory, which we will discuss later, can in no way be regarded as rationalism. Rather, it is a blending and uniting of the rationalist and the empiricist views into a unified system that is known variously as *transcendental idealism*, *critical idealism*, or *critical philosophy*.

Hegel is often supposed to be a follower of the Kantian system, but this label is, I think, entirely incorrect. Kant took Hume’s criticism quite seriously, and recognized the problems it presented for not only empiricism but for rationalism as well. In Kant we find a balance between empiricism and rationalism, resulting in a new philosophy which is neither. Hegel, however, strongly objected to the empirical element of Kant's system. In the interest of brevity, let us refer to Schwegler’s analysis of Hegel, written in 1856 [SCHW: 423-425]:

The claim of Hegelianism to be the completion of philosophy has not been historically justified. On the contrary, the rejection of Hegel's theories by the scientific world has been complete and striking. Even before his death, the opposing tendencies of the age . . . had materially weakened his influence; and the reaction thus begun, rapidly advanced until, within less than thirty years, his authority has been almost wholly destroyed. . .

The grounds of this reaction are to be found, partly in the opposition of Hegelianism to the growing social, political, and religious radicalism of the present age; but more fundamentally, in certain special internal weaknesses of that system itself. The most important of these are, in brief, the following two: 1) Hegel's philosophy was based upon a one-sided interpretation of Kant. In the *Logik* and *Naturphilosophie*, the idealistic element of Kant's system, the apriority and spontaneity of pure thought, was made superior to the corresponding realistic element, and posited as the ground from which this latter is to be logically deduced. But in this the peculiar standpoint of Kant was altogether abandoned. For the entire significance of the *Critique*<sup>1</sup> - if we are to believe Kant's own words - rests upon the fact that it posits these elements as coordinate, and their relation is one of reciprocal determination. . . 2) The central doctrine of Hegelianism, viz., that *knowledge* is possible through pure thought alone (which was the immediate result of this subordination of Kant's realism to his idealism), involved consequences which it is impossible for modern thought to admit. . . For the physical sciences the test of truth is conformity to the actual as determined by observation and experiment; and it was the impossibility of making Hegel's physical theories conform to this test, that most clearly betrayed the inadequacy of his position.

It is the one-sided advantage given to the doctrine of knowledge “through pure thought alone” that causes me to label Hegel’s theory as rationalism.

Let us now look at the theory itself. Hegel’s work is technical, obscure, and very verbose, so the summary given here must necessarily be greatly abbreviated and, on that point, is bound to be somewhat unfair to Hegel. Keeping in mind that I present something of a cartoon version of Hegel, the fundamental picture is as follows.

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<sup>1</sup> Kant's *Critique of Pure Reason* [KANT1].

Hegel's starting premise is that all of existence is to be considered as a *unity*, i.e. there is one universe and everything within it is an inseparable part of it. Therefore any finite and limited theory, which can only deal with a part of the overall universe, will necessarily contain antinomies (fundamental contradictions). Since it is impossible and foolish to even attempt to begin with a "theory of everything", the only way we can proceed is to start somewhere and posit a partial theory. But for every such thesis, we can always find an antithesis that contradicts it. By synthesizing the thesis with the antithesis, we can arrive at a higher, more complete thesis that contains the fundamental truths of the two lower theories<sup>2</sup>.

This new "higher" theory is also limited and, therefore, an antithesis can be found for it as well. The synthesis of these two yields an even "higher" level of truth, although this new thesis is still limited and has its own antithesis, etc. Now, it is the human mind that formulates these theories and carries out (in principle) this unending series of thesis-antithesis-synthesis. But, even though we cannot actually carry out this infinite process, Hegel believes he can see where all of this is heading, namely, towards an Absolute Spirit (or Absolute Mind) which knows itself and knows itself as pure and universal self-consciousness. This Absolute Spirit is always changing, always evolving, and – because we are all of us merely part of it – *history* is none other than the realization of this Spirit in its freedom. "Universal History" is "the exhibition of Spirit in the process of working out the knowledge of that which is in it potentially. And as the germ bears in itself the whole nature of the tree, and the taste and form of its fruits, so do the first traces of Spirit virtually contain the whole of that History."<sup>3</sup>

Now, what does this really mean? I do not know. Much of what Hegel writes about his dialectic method reminds me of Spinoza, and much of it strikes me as one with the *T'ao Te Ching*, although not nearly as poetic. There are some who think Hegel brings Kant to "logical finality" [JOAD: 428], but I do not accept this viewpoint. Hegel abandons Kant very early [HEGE1: 66-68], and even his criticism of Kant seems to me to miss the point of the Critical Philosophy entirely. Hegel is to Kant what the neo-Platonists were to Aristotle. I think there is much truth to William James' remark that likens Hegel's Absolute to "a sea-side boarding house with no private bedroom in which I might take refuge from the society of the place." Be this as it may, Joad's observation seems accurate: "In spite of the large claims made on [behalf of Hegel's dialectic method], the method is in practice surprisingly unfruitful. Hegel used it with apparent effect, but it has been suggested that its effectiveness in his hands arose very largely from the nature of the problems to which he applied it. . . . But many would refuse to regard them as real problems at all" [JOAD: 406-407]. This is a quite sufficient ground for us to move on.

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<sup>2</sup> This is known as the Hegelian triangle.

<sup>3</sup> G.W.F. Hegel, *The Philosophy of History*, Charles Hegel (tr.), NY: Dover Publications, 1956, pp. 17-18.

## § 6. The Unified Themes

We have seen that both the rationalist approach and the empiricist approach to the question of mind lead to a theme in which mind becomes soul or immaterial thinking substance, and that within these two major themes we may end up in some very different places so far as how mind comes to be viewed. In this section, we will take a look at two more major themes, which I call unified themes of mind.

The rationalist cornerstone is the theory of the innate idea, and the rationalists' primary tool is deduction performed on consequences of a presupposed ontology. Rationalist themes tend to have a mathematical flavor, a tendency which is not too surprising considering that Descartes and Leibniz were both great mathematicians. The rationalist believes that all knowledge can be gained through pure thought, unadulterated by the capricious "data of the senses." The hand of Plato rests on the rationalist's shoulder, and the notion of the great Platonic Ideas, which have somehow more reality and permanence than the evidence of the senses, is a strong influence. One gets the impression that the innate ideas of the rationalist might turn out to be none other than the Platonic Ideas. So it is that Hegel writes

From our point of view Mind has for its *presupposition* Nature, of which it is the truth, and for that reason its *absolute prius*. In this its truth, Nature is vanished, and the mind has resulted as the "Idea" entered on possession of itself. Here the subject and object of the Idea are one - either is the intelligent unity, the notion. [HEGE2: § 381].

Necessity clings to and depends on the existence of self-evident universal truths, and such truths are not to be had from the data of experience (as Hume so forcefully demonstrated). And where else, the rationalist demands, can universal and necessary truths come from if not from innate ideas? (We will provide Kant's answer to this question shortly). The price paid by rationalist philosophers is a view of mind imprisoned in an incorporeal world, and either the outright loss of the corporeal world altogether or the conclusion that the incorporeal mind can make contact with a supposed corporeal world only through a *Deus ex machina*.

The corporeal world is precious to the empiricist; he does not wish to lose contact with the world of nature in its corporeal form. The flavor of empiricism is natural science. The empiricist works with the ghost of Aristotle standing beside him, and he prefers to work using only sensible facts as premises. But he finds in these facts no element of necessity and so, if there are to be any truths, he must, like Aristotle, admit the incorporeal soul into his system. If he is unwilling to do so, he becomes Hume, skeptical of everything and certain of nothing.

Or he may become Comte. We have already mentioned, in the previous section, the scientific backlash against Hegel's rationalism. Auguste Comte (1798-1857) was the leading figure (or at least the leading figurehead) in this backlash. Comte originated the attitude known as *positivism*

which came to dominate nineteenth century science [MARI: 348-359]. Positivism attempts to do away with any kind of metaphysics. Facts are not true, they are verified or refuted; truth itself is relative, so all things are true from one viewpoint and all things are false from another; science does not seek causes, it seeks “laws” (i.e., “descriptions”). The positivists felt they had done away with philosophy and so the nineteenth century was, for philosophy, a dark age.

But the positivists were wrong. Every scientific endeavor takes for itself a beginning, some set of objects and premises that, consciously or unconsciously, guide the manner in which problems are viewed and methods are sought. The positivist merely refuses to examine his premises, but he has premises all the same. For positivism the underlying system of thought is *historical*. Comte wrote, “Today it can be affirmed that that doctrine which shall have sufficiently explained the past in its totality will inexorably obtain, in consequence of this proof alone, intellectual leadership over the future” [MARI: 354]. The scientific successes of the nineteenth century are, I think, proof of how much can be accomplished, without examining metaphysical premises, by what Kuhn has called normal science [KUHN: 10-42]. The great revolution in physics at the beginning of the twentieth century and the collapse of positivism as a fundamental premise in science that followed it [JOAD: 527-539] speak to the ultimate bankruptcy of the positivist program.

And so it is that the self-proclaimed “queen” of the sciences, physics, has recognized the dubitability of empiricism that Hume proclaimed. In the words of physicist and Nobel laureate Richard Feynman:

You can see, of course, that with this method we can attempt to disprove any definite theory. If we have a definite theory, a real guess, from which we can conveniently compute consequences which can be compared with experiment, then in principle we can get rid of any theory. There is always the possibility of proving any definite theory wrong; but notice that we can never prove it right. Suppose you invent a good guess, calculate the consequences, and discover every time the consequences you have calculated agree with experiment. The theory is then right? No, it is simply not proved wrong. In the future you could compute a wider range of consequences, there could be a wider range of experiments, and you might then discover that the thing is wrong. . . We are never definitely right, we can only be sure we are wrong. However, it is rather remarkable how we can have some ideas which will last so long [FEYN2: 157-158].

The rationalist approaches begin by throwing away that which is most dear to the empiricists, namely, the sensible world and all its manifestations. More accurately, the rationalist wishes for this world to be deducible from pure principles and, thereby, be made certain. The empiricist approach begins by throwing away that which is most dear to the rationalist, namely the innate ideas that are the ground and source of “truth” and certainty. There is, however, a certain irony in this, for science operates on the *presumption* that there *is* an order in nature; if there were not, science itself, as a human activity, would be meaningless. The scientist can live with doubts about the completeness or veracity (i.e., the “range of application”) of his theories,

but he cannot bear to doubt the certainty of the existence of a ‘real’ natural order in things, nor that things themselves have ‘real’ existence. But, if the foundations of this need be pursued, the empiricist arrives at the same pretty pass as the rationalists. When the world is divided up into an *intellectual* world and a *sensible* world, and then one or the other is denied a fundamental ontological position, then no matter which of these worlds is given priority, the result is the same: the loss of that world which is, theory notwithstanding, the most apparently real to each of us.

And this is the fundamental error made by both the rationalists and the empiricists. The error does not lie in making a theoretical division of the world into intellectual and a sensible parts; the error lies in giving one or the other of these parts first priority. Our next two themes represent attempts to avoid this error by acknowledging the intellectual and the sensible worlds as having coordinate roles rather than demanding that one be made subordinate to the other. They differ in the depth of exploration they give to one of these worlds versus the other, but this is emphasis of effort rather than emphasis of principle.

### § 6.1 Theme VI: Mind as an Organization of Mental Phenomena

Our sixth theme is the creation of one man, the great German philosopher Immanuel Kant (1724-1804). Kant views mind as a phenomenon with self-observable effects (thinking, feeling, etc.) which collectively can be called *empirical consciousness*. The study of the mind was not, in fact, his prime motive in the development of his theory; his prime motive, as a philosopher, was to rescue philosophy itself from the devastating attack by Hume. In order to do so, he found himself forced to re-examine the foundation of knowledge and, in order to do so, he was necessarily driven to examine the phenomenon of mind. Thus Kant begins with epistemology rather than ontology. It was from this study that Kant developed a picture of mind expressed in terms of what mind *does*, rather than what it *is*. In its actions, mind is revealed as owning a number of capacities (*Vermögen*), among which we find those of *sensibility*, *imagination*, *understanding*, *reason*, *judgment*, *will*, and *feelings*<sup>1</sup>. We will find ourselves devoting most of the rest of this work to discussing these capacities, and so here we will focus our attention on the groundwork of Kant's system from which he took his unique starting point.

We have already discussed the impact Hume's skepticism had on empiricism. What we have not discussed yet is the even more severe devastation it brought to the rationalist systems. Up to this point, the criticism I have leveled at the rationalist systems has concentrated on the supernatural element they are forced to adopt. This alone is enough to prevent a rationalist

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<sup>1</sup> It is a curious omission, but Kant's system did not explicitly deal with the phenomenon of *memory*. The function of memory appears only implicitly in Kant's work, usually under the title of the *manifold of concepts*. However, as we shall later see, the function of memory can be viewed as a kind of by-product of the co-operations of imagination, judgment, and reasoning.

scientific treatment of mind as a phenomenon. But there is an even more fundamental philosophical problem with the rationalist systems, and this problem is fatal.

We have seen that the rationalist approach inevitably becomes idealism. The necessity and the certainty that it strives to bring to the data of sensation arise from the innate ideas of the mind. But this brings us to one of the greatest mysteries in philosophy. The innate ideas exist, in theory, in the mind, while the appearances we call the external world exist outside the mind. We must therefore ask: *why should things and events taking place outside the mind conform with a priori innate ideas in the mind?* The rationalist answer, in one form or another, reduces to a statement of cause and effect. For example, in Leibniz the “externals” conform to the dictates of innate ideas because God decreed there should be pre-established harmony. Other rationalist arguments, which invariably tend to be analytic arguments, generally take an *if X then Y* form, which is, after all, the logical form of a cause and effect argument. In such an argument, the antecedent, X, and the consequent, Y, are joined together through necessity.

Hume, however, utterly destroyed the underpinnings of this type of argument. His argument is: *If a cause and an effect are two different events, each must really be distinct and separate from the other. But if they are separate, there can be no necessary connection between them.* If the effect is really a distinct event from the cause, then nothing in the cause can be discovered *in the effect*. Therefore there is no *necessary* link or tie between them that can be discovered through pure thought. Hume maintained that every statement of cause and effect was really a statement about a series in time given empirically. The rationalist argument therefore has no more validity than the common fallacy of *A followed B, therefore B caused A*. Hume’s argument is extremely difficult to refute and, indeed, no purely rationalist argument has been mounted that is capable of overcoming it.

Hume made a deep and lasting impact on Kant. In his *Prolegomena*, Kant wrote

I freely confess my recollection of David Hume was what many years ago first interrupted my dogmatic slumber and gave my investigations in the field of speculative philosophy quite another direction. I was far from giving an ear in regard to the conclusions at which he arrived, these resulting merely from his having not fully presented the problem but only a part of it, which without taking into account the whole can give no further information. . . I therefore first tried whether Hume's objection could not be put into a general form, and soon found that the notion of the connection of cause and effect was by no means the only notion by which understanding thinks the connection of things *a priori*, but rather that metaphysics consists wholly and entirely out of them [KANT2: 8 (4:260)].

Kant recognized that if Hume’s skepticism was to be answered, it would have to be by way of an entirely new way of looking at these metaphysical connections. His solution has been called (by Kant and by many others) a *Copernican Revolution* in philosophy.

## Chapter 1: First Prolegomenon

It has hitherto been assumed that our knowledge must conform to the objects; but all attempts to ascertain anything about these objects *a priori*, by means of concepts, and thus to extend the range of our knowledge, have been rendered abortive by this assumption. Let us then make the experiment whether we may not be more successful in metaphysics if we assume that the objects must conform to our knowledge, which appears, at all events, to accord better with the possibility of our gaining the end we have in view, that is to say, of arriving at knowledge of objects *a priori*, of determining something about these objects before they are given to us.

This would be just like the first thoughts of Copernicus who, inasmuch as he did not make good progress in the explanation of the celestial motions if he assumed the entire celestial host revolves around the observer, tried to see if he might have greater success if he made the observer revolve and left the stars at rest. Now in metaphysics we can try to do likewise regarding the *intuition* of objects. If the intuition must conform to the nature of the objects, I do not see how we can know anything of them *a priori*; if, on the other hand, the object (as Object of the senses) conforms to the constitution of our power of intuition, I can then very well represent this possibility to myself.

Now as I cannot rest in the mere intuitions, but - if they are to become knowledge - must refer them, as representations, to something as object and determine the latter by means of the former, here I may assume that the concepts by which I effect this determination conform to the objects - and in this case I am reduced to the same perplexity as before with regard to how I can know something *a priori* - or else I may assume that the objects - or, which is the same thing, that *experience* in which alone objects, as givens, are known - conform to these concepts - in which case I immediately see an easier way out of the difficulty, since experience itself is a mode of knowledge which requires understanding, whose rule I must presuppose in myself before any object is given to me, hence *a priori*, thus expressed in notions *a priori* to which, then, all the objects of experience must necessarily conform and with which they must agree [KANT1: 15-16 (B: xvi-xviii)].

For Locke, and for all empiricist philosophers, it had always been assumed that the mind was a kind of passive instrument in that the things of experience “impressed” their own image on the “tablet” of the mind. But Kant said *suppose mind takes an active role*. Suppose instead that these “impressions” are formed *by the phenomenon of mind*. The representations of objects would then appear to us the way that they do *because one’s mind made the representation*. The object in the physical world can *stimulate* one’s mind to make the representation, but the form of that representation (and therefore how the object *appears* in one’s mind) bears our own craftsmanship. If this is the case, then Hume’s objection is overcome and the existence of innate *rules* to which the *appearance* of objects of experience *necessarily* conform is possible.

Notice that what Kant is doing *blends* the views of empiricism and rationalism. Intuitions and concepts now bear the mark of both the empirical data of sense *and* the rational, intellectual *organization* of one’s mind. This was an utterly new way of looking at metaphysics, one in which ontology (the theory of things) is subordinated to epistemology (the theory of knowledge). In Kant’s system, the empirical and the rational are on equal footing and are to be treated as equals. In other words, there is mutual *coordination* between the empirical and the rational.

He also changes the view of “innate knowledge.” For Locke and others, the notion of innate ideas conjured up images of full-blown ideas such as “one plus one is two.” Kant is not asking

this of *his* knowledge *a priori*. Instead, these innate factors are going to be *functions*, specifically, the functions that are necessary *for experience itself to be possible*.

I said a moment ago that the object can stimulate one's mind to make the representation. Is Kant merely assuming this and, if so, why doesn't Hume's criticism apply? The answer is: No, Kant is not merely assuming this. Hume doubted everything *except* Descartes' "I think." Even for Hume, it is permissible for me to *know* with certainty that *I* exist. It is merely what "I" am that is in question. I can determine myself as existing in time. But to be determined as existing *in* time means to be determined with respect to *changes*. Consider Descartes' *I think, therefore I am*. If I *think*, then I have thoughts. But thoughts are not static representations. They "move" and "flow" from one to the next. My thought now is different from my thought a moment ago.

However, the idea of "different" necessarily implies some kind of "background" in relationship to which change can be perceived. In other words, the idea of existing in time necessarily implies the existence of something *unchanging* that a change can be perceived as being in contrast with. What this relational background might be we cannot say, but we must allow that, whatever it is, it really exists. But, whatever "it" may be, this permanent *I-know-not-what* must encompass more than just myself. My thoughts are *my* thoughts; they are "in" *me*. Therefore, *I* cannot be the backdrop against which change is perceived because it is something of *me* that is changed. Consequently, the Self that I perceive as myself is not known through an *internal* sense but through an *outer* sense. Furthermore this same argument, the knowledge of being determined in time, has established the existence of at least one thing besides myself. It follows that external things *are real* and that Descartes' problematic idealism is wrong to deny the status of real existence to his *res extensa* [KANT1: 194-197 (B:274-277)].

This type of argument, i.e. that one thing is necessary for the possibility of something else known to be true, runs throughout Kant's method. Here we find Kant applying Leibniz' principle of sufficient reason with a very different twist. Kant begins with an empirical particular, the *Dasein*<sup>2</sup> of which is ascertained, and uses that particular to open the door to the knowledge of something else that must exist as a ground for the first. Leibniz, on the other hand, begins with the same particular but refuses to accept it as ascertained until he has developed a theory under which the first particular can be deductively *held* to be certain. For instance, if there is to be a composite (which is, after all, the *given* phenomenon), then Leibniz argues that simple substances must exist. The "simple" becomes more "real" for him than the composite it is designed to explain.

Kant would take the composite as that which is most ascertained and derive the concept of *parts*. But whereas Leibniz felt he must fully develop the characteristics of the simple before

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<sup>2</sup> *Dasein* is existence in the connotation of "something-is". It is the declaration of the subject of whatever predication follows. A very literal translation of *Dasein* into English is "there be." In contrast, *Existenz* is the manner in which something exists. A predication specifies *Existenz*.



accepting the composite, Kant would demand only the *Dasein* of the parts. To say that these parts are “simple” goes farther than is necessary for the possibility of the composite. More evidence would be required to declare that these parts either are or contain “simple” parts. In fact, when Kant finally catalogs his inventory of *a priori* notions (the Critical version of “innate knowledge”), the idea of “the simple” is not found among them. This does not mean that the simple cannot exist, but if it does the *evidence* that the simple actually exists must come *from* experience.

Kant describes *understanding* in terms of the power (capacity) of the phenomenon of mind to spontaneously produce concepts. But this ability is a power constrained by *a priori* principles (rules) that govern the constitution of these concepts. The first principle for these rules is that they be such as *to make experience possible*. The bare phenomenon of *experience* is the given certainty. Whatever *I* may be, it is certain that I am someone who experiences. But because experience is something I *have* (it is *my* experience), the explanation of the phenomenon of experience must be sought within myself, and not in the external world. The external world may be what my experience is *about*, but the nature of experience as experience must be sought within *me*, and this nature is part of the phenomenon called *mind*. In more modern terminology, the mind is a capacity for constructing a “world model” (which we will call “Nature”) whose matter subsists in experience and whose form is determined by innate functions of the phenomenon of mind by which I *make* my representations of experience.

This view of experience is in direct opposition to Locke’s theory. According to Locke, the experience of things is stamped into the mind as the image of some external agency, but the experience of relationships among things arises from the mind’s “inner sense” of its own operations (“reflection”). But if the ideas of objects originate externally while the ideas of relationships originate internally, there is no objective validity found to support the claim that relationships necessarily apply to objects. In Kant’s view, we do not experience an object directly, i.e. as a thing-in-itself (*Ding an sich selbst*) because our perception of an object is a representation by means of the phenomenon of mind and, therefore, is only the *appearance* of the object or the appearance of the *relationship* among objects. Because this is the case, necessary relationships become possible because these mental representations only contain *that which we ourselves place in them* [KANT1: 16 (B: xviii)].

This does not mean that the transcendental objects, as things-in-themselves, are “unreal” in some fundamental way; the previous argument established that they are quite real. But it does mean that *there are limits to what we can know* about these transcendental objects. We can gain knowledge about them only through the testimony of experience, but at least our experience *is objectively valid* and, in addition, our speculations about objects *are testable*.

Following the naturalist, this method consists in: seeking for the elements of pure reason in that *which admits of confirmation or refutation by experiment*. Now the propositions of pure reason, especially when they transcend all limits of possible experience, do not admit of our making of any experiments on their *Objects*, as in natural science: hence, with regard to those *notions* and *principles* which we assume *a priori*, our only course will be to view them from two different sides, namely, we must regard one and the same concept, *on the one side*, as an object of the senses and of understanding for experience, or *on the other side*, as an object which is merely thought at most for isolated reason striving beyond the boundaries of experience. If we find that, when we regard things from this double point of view, the result is in harmony with the principle of pure reason, but that, when we regard them from a single point of view, reason is involved in self-contradiction, then the experiment will establish the correctness of this distinction [KANT1: 16fn (B: xviii-xix)].

The “sides” of which Kant speaks is a distinction between an *a priori* notion as a limitation on and condition of experience, and this same notion viewed in terms of the concept of a thing-in-itself. Let us consider the notion of *plurality*. In the flood of sensations that we experience, few things can be more self-evident than that we are able to develop concepts of *multiple* objects, separate and distinct from one another. But we never encounter a thing-in-itself called plurality. Plurality is a *notion* which is clearly necessary for the possibility of perceiving objects (in the plural), for conceiving the appearance of a thing as being *composite*, and so forth. As a notion, plurality is a necessary element of the structure or *form* of some concepts of experience.

But now suppose that we assume plurality to be an actual *thing-in-itself*, something with objective existence in its own right. Can we do this without self-contradiction? It would have to be *one* thing whose essence is that it is *more than one* thing, i.e., “a one which is at the same time a not-one.” This is certainly a contradiction. However, we might fairly ask if this simple example is *too* simple; are we really trying as hard as we could to find a thing-in-itself which is Plurality?

As it happens, there is a very famous argument in theology that seems to involve precisely the notion of a thing-in-itself which is Plurality, namely the doctrine of the Holy Trinity – God the Father, the Son, and the Holy Ghost. Let us look at what Aquinas had to say about this<sup>3</sup>.

[AQUI: Q. XXX, A. 1]: *Whether there are several persons in God?*

*We proceed thus to the First Article:* It would seem there are not several persons in God.

*I answer that,* It follows from what precedes that there are several persons in God. For it was shown above (Q. XXIX, A.4) that this word person signifies in God a relation as subsisting in the divine nature. It was also established (Q. XXVIII, AA. 1, 3, 4) that there are several real relations in God; and hence it follows that there are also several realities subsistent in the divine nature, which means that there are several persons in God.

Our empirically-founded ideas of plurality involve either multiple entities or parts in *composition*. Observe that Aquinas is shifting the meaning of the word “person” from an entity to a relation. In *Summa Theologica*, he uses this word “relation” to mean the same thing as *property*.

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<sup>3</sup> I am omitting many of the details of the “objections” and “replies” in the *Summa Theologica*, while attempting to preserve the major arguments. The interested reader may explore these details to whatever depth he chooses by referring to the “questions” and “articles” cited above.

Now, we do not regard the fact that a thing may have several distinct properties as meaning that the thing is somehow plural *in itself*. Therefore, if, as he says, the word person “signifies in God a relation,” Aquinas is, in fact, arguing that God is *not* Plurality. But how is it that “person” signifies an entity if someone uses it to refer to *me* but signifies a relation if he uses it to refer to God?

[AQUI: Q. XXIX, A. 3]: *Whether the Word "Person" Should Be Said of God?*

*We proceed thus to the Third Article:* It would seem that the word person should not be said of God.

*I answer that,* Person signifies what is most perfect in all nature - that is, a subsistent individual of a rational nature. Hence, since everything that is perfect must be attributed to God; because His essence contains every perfection, this name person is fittingly applied to God; not, however, as it is applied to creatures, but in a more excellent way . . .

*Objection 1.* For Dionysius says (*Div. Nom. i*): "No one should ever dare to say or think anything of the supersubstantial and hidden Divinity beyond what has been divinely expressed to us by the sacred oracles." But the name person is not expressed to us in the Old or New Testament. Therefore person is not to be applied to God.

*Reply Obj. 1.* Although the word person is not found applied to God in Scripture, either in the Old or New Testament, nevertheless what the word signifies is found to be affirmed of God in many places of Scripture; as for instance that He is the supreme self-subsisting being. If we could speak of God only in the very terms themselves of Scripture, it would follow that no one could speak about God in any way but the original language of the Old or New Testament. The urgency of confuting heretics made it necessary to find new words to express the ancient faith about God.

The word “person” is therefore to be considered a homonym when it is applied to God.

What about the possibility that the “relation” implied by the word “person” is a composition?

[AQUI: Q. XXX, A. 1]: *Obj. 3.* Further, Boëthius says of God (*De Trin. III*), that "this is truly one which has no number." But plurality implies number. Therefore there are not several persons in God.

*Reply Obj. 3.* The supreme unity and simplicity of God exclude every kind of plurality of absolute things, but not plurality of relations, which are predicated of something as having relation to something else, and thus the relations do not import composition in that of which they are predicated, as Boëthius teaches in the same book.

*Obj. 4.* Further, where number is, there is whole and part. Thus, if in God there exists a number of persons, there must be whole and part in God, which is inconsistent with the divine simplicity.

*Reply Obj. 4.* Number is twofold, namely, simple or absolute, as two and three and four, and number as existing in things numbered, as two men and two horses. So, if number in God is taken absolutely or abstractly, there is nothing to prevent whole and part from being in Him, and thus number in Him is only our way of understanding, because number regarded apart from things numbered exists only in the intellect. But if number be taken as it is in the things numbered, in that sense, as existing in creatures, one is part of two, and two of three as one man is part of two men and two of three; but in this way it does not apply to God, because the Father is of the same magnitude as the whole Trinity, as we shall show further on (Q. XLII, A. 4, Ans. 3).

So, these “relations” are not composition either (reply 3). Furthermore, the very idea of “number” does not apply to God excepting only as a way *we* must think of Him. And, when we think number in this way, “it exists only in [our] intellect,” i.e., this thought does not pertain to God but

only to our own limited understanding of God. The doctrine of the Holy Trinity is *not an example* of the thing-in-itself I called Plurality. We can blame the heretics for the confusion.

Getting back to the main point, Kant outlines a method by which the *a priori* rules of the phenomenon of mind can be tested to see if they meet the conditions of his “Copernican” model of making the representation of an object conform to the conditions under which experience is possible. If we should happen to discover a necessary *a priori* notion in which reason, “isolated and transcending the limits of experience,” did *not* encounter a contradiction, then Kant’s Copernican hypothesis would simply be *wrong*.

### Advantages and Shortcomings of Kant’s Critical Philosophy

We can regard any theory of mind in a number of ways, i.e., from a number of viewpoints. In doing so, we find in Kant’s system that the *analytical* views we can take occur in pairs, each of which is, on the one hand, in opposition to the other but is also, on the other hand, complementary to the other such that neither view is really complete without the other. We have already seen something of an example of this in our contrast of the views of rationalism and empiricism. In the Kantian system we may term this division the *intellectual* view and the *sensible* view when we speak of the phenomenon of mind, and the views of *pure* reason and *empirical* reason when speaking of knowledge and its sources. There are a number of other possible dichotomies of view we can distinguish. Let us list some of them.

*Subjective and Objective:* All knowledge is knowledge *about* something, and we call what this knowledge is about its *object*. But knowledge also implies *meaning* and, as Hume’s analysis warns us, meaning is not presented to us by the data of sense. Rather, meaning is something that is given *to* the representation of an object, and this can only be provided by the thinking Subject “himself.” The objective view concerns knowledge as it relates to its object. The subjective view concerns knowledge as it relates to meaning.

*Aesthetical and Logical:* Mind is the term we use to describe the active agency at work in the *production* of concepts, ideas, maxims, and voluntary actions which collectively comprise that which we call experience. When we view this agency as phenomenon, the elements of our theory that originate in sensation, feeling, intuition, satisfactions, and, in general, the subjective origins of knowledge comprise the aesthetical viewpoint<sup>1</sup>. Those elements which pertain to the constitutive functions of thinking comprise the logical viewpoint.

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<sup>1</sup> The word aesthetics, as used by Kant and in this treatise, comes from the Greek αισθητικός, of the senses, and is not meant to imply such things as taste in fine art, fashion, and such other connotations in the modern usage of the term esthetics.

*Practical and Speculative:* The general employment and regulation of mental abilities is called reasoning, and reason admits of two viewpoints. The practical viewpoint concerns the subjective aspects of reason, e.g., *what should I do?* or *what do I want?* It is concerned with motivations, goal-setting, and so on. The speculative, or *theoretical*, viewpoint concerns the objective and logical aspects of reason in the employment of one's capacity for understanding.

*Affective and Cognitive:* We are not creatures of unremitting logic and reason. How we feel about something is oftentimes more important than what we *think* about it and, oftentimes, when we are not in possession of complete factual information, we can and do make decisions based on what is commonly called "instinct" or "gut feel." Even the phenomenon of *attention* appears to have a non-cognitive origin, since 'attention' determines what we will think about and how long we will continue to pursue a particular "train of thought." This non-cognitive aspect of mental phenomena constitutes what we may call an affective viewpoint, in contrast to the discursive or cognitive aspect of mental phenomena.

*Transcendent and Transcendental:* An idea or concept is called transcendent when its object goes beyond the boundaries of any possible experience. Most ideas of the supersensible are of this class, and when carried to an extreme such ideas are called superstitions. Questions such as "did the universe have a beginning?" are fundamentally transcendent questions since there is no possible way for experience to provide an unequivocal answer. The word *transcendental*, on the other hand, refers to *the conditions necessary for the possibility* of having experience and describing what we experience. Transcendent and transcendental are, therefore, two entirely different and opposing terms expressing viewpoints of, on the one hand, that which we might think but cannot know with certainty and, on the other hand, what must *necessarily* be in order for us to know *anything*. Thus, Leibniz' monads are transcendent constructs of the mind, while Kant's *a priori* functions that describe the form of mental organization and processes are transcendental. For this reason Kant's philosophy is oftentimes called *transcendental idealism* in contrast to the *subjective idealism* of Descartes or Berkeley.

*A priori and a posteriori:* Finally, we can look at knowledge from the view of whether this knowledge is necessary for, and therefore antecedes, experience (*a priori*), or whether a particular item of knowledge is the product of experience (*a posteriori*). The former pertains to those functions of the phenomenon of mind that describe one's agency in constructing representations and providing objective validity to and meanings for these constructs. The latter pertains to the appearance of the objects of these representations.

One of the primary advantages of Kant's critical philosophy is that it forces us to deal explicitly with such pairs of opposites *and to reconcile them with each other*. When we take a concept, such as the concept of viewpoint, and divide this concept into a pair of opposites, as we

have seen illustrated above, we may call this action an *analytic division*. But when we reconcile a pair of opposites, we produce a unity between them through an act we may call a *synthetic integration*. In such an act, the one acts as a limitation or *condition* that is applied to the another thing (the *conditioned*) in order to produce a synthetic union of the two (the *unity*). For example, a collection of particular individuals (the conditioned) thought as comprising a single thing (the condition) is the basis and definition for our idea of a class (the unity), e.g. all human beings considered collectively comprise the human race. So it is that synthesis always involves a three-fold structure, e.g. {conditioned, condition, unity} or {grounded, ground, whole} [PALM1: 71-91].

This and other elements of Kant's theory provide us with the basis for the development of what we may term a *logic of meanings*. It has been widely recognized that mathematical logic, also known as symbolic logic, is an insufficient basis for a theory of mind (e.g. [PIAG7], [PIAG12]). Mathematical logic is formal, analytical, and is a logic of "truth-values" rather than a logic of truth, since whether a conclusion of logic is *materially* true (rather than merely "correct") depends on the "material truth" of its premises. It must depend on something else to look after the material (or "empirical") correctness of the terms that are plugged into its form. This "something else" was termed a *transcendental logic* by Kant in *Critique of Pure Reason*, and Kant's theory provides us with this transcendental logic.

But mathematical and transcendental logics, being "opposites" in the sense described above, require a third factor to give them the unity we require in a logic of meaning. Kant himself does not explicitly provide this in his numerous writings; the focus of his work was the implication of his system for philosophy and metaphysics. Consequently, Kant does not provide the detailed discussion of the *empirical* side of mind – the transcendental architecture for connecting affectivity and cognition – needed to wed meaning with the representation of appearances. This is a shortcoming we must overcome since it constitutes the third factor in a synthetic theory of the phenomenon of mind. This third factor we may term the *psychological dimension*. And this brings us to our seventh and final theme.

## § 6.2 Theme VII: Mind as the Totality of Mental Processes and the Principle of Meaningful and Purposive Behavior

The shortcomings in Kant's system lie in those aspects of mind he did *not* treat rather than in those aspects he did consider. This is not really a criticism we can level at Kant because, as we have said, his primary objective was to rescue philosophy itself from the wreckage that remained of it after Hume. But the subject of this treatise is aimed toward the mental physics of the phenomenon of mind, and so a theory of *empirical* reason cannot be omitted from this work. Without such a factor, we would not have a system.

Unlike the first six themes we have discussed, our final theme is the product of men who were scientists first and philosophers only secondarily. As we mentioned earlier, the nineteenth century was dominated by the spirit of positivism. But by the end of that century and the beginning of the twentieth, positivism was a dying movement and, under the influence of new discoveries, philosophy began to re-emerge, although the influence of positivism is still being felt even here at the beginning of the twenty-first century. Our final theme arose in this atmosphere of dying positivism and its mark can be detected in the writings of the men who put forth this theme.

According to this view, mind is the name we give to the unity we perceive in our powers and faculties of obtaining knowledge. That the mind does exist is accepted as fact, but mind is not a material entity nor is it soul. It is to be viewed purely as a phenomenon that is somehow, and as of yet inexplicably, linked with brain function. Only the appearances of its manifestations can be observed, yet a great deal can be known about it, indirectly, through our own powers of cognition coupled with experimental science. Far from demanding that mind be equated with corporeal substance, it is sufficient to view mind as a supersensible (as mass and charge are viewed in physics) and to discover the principles it obeys and its correlations with brain function. Observation and empirical evidence are to be the basis of theories of the mind, and hypotheses put forward to explain mind must have consequences that can be tested empirically.

In brief, this seventh theme is an approach to understanding mind rooted in deduction from empirical evidence, but willing to call upon philosophical premises when it makes sense to do so. Furthermore, and unlike the prevailing attitude found in positivism, unexamined metaphysical *prejudices* are to be examined and discarded when these positivistic prejudices manifest themselves in unwarranted assumptions dictating the permissible lines of inquiry.

In many ways, this view is the empirical complement of Kant's epistemological approach. Kant's concern was the conditions necessary for experience to be possible; the psychological character of our seventh theme is concerned with the details of how experience is gained and how mind makes itself manifest in observable ways. In this section, we will examine two well articulated views of this theme.

### Mind as the Stream of Thought

The first manner of viewing our seventh theme is owed primarily to William James (1842-1910). James received his medical degree from Harvard in 1869 and was appointed as an instructor in physiology at Harvard in 1872. In 1875 he offered the first American course in experimental psychology and established the first laboratory in America for experimental studies in psychology. Since at that time psychology was considered to be part of philosophy, he later transferred to the philosophy department of Harvard. His most important book, *The Principles of Psychology*

[JAME2], was published in 1890 and is still in use today. By 1900, poor health had forced James to limit his teaching activities and he turned his energies toward philosophy. His interpretation of Harvard philosopher Charles Peirce's theory, which he published in 1907 [JAME1], led to James' reputation as the leading figure in that distinctly American philosophy known as *pragmatism*.

James was strongly opposed to what he viewed as the "atomism" of Locke's theory in which "ideas" are seen as a kind of quantized thought. He appears to have interpreted Kant's theory as being similar in terms of this "atomism" (and, indeed, it is easy to so misinterpret Kant). We have already mentioned, in connection with the materialist views, his criticism of mind dust theory and the automaton model of mind. His conception of mind is formed from the view of pragmatism, and his first position is that it is empirically meaningless to postulate the notion of "simple" ideas or sensations.

No one ever had a simple sensation by itself. Consciousness, from our natal day, is of a teeming multiplicity of objects and relations, and what we call simple sensations are results of discriminative attention, pushed often to a very high degree. . . The only thing which psychology has a right to postulate at the outset is the fact of thinking itself [JAME2: 146].

James uses the term "thinking" to refer to "every form of consciousness indiscriminately." He describes "thought" in terms of five "characters":

1. Every thought tends to be part of a personal consciousness;
2. Within each personal consciousness, thought is always changing;
3. Within each personal consciousness, thought is sensibly continuous;
4. Thought always appears to deal with objects independent of itself;
5. Thought is interested in some parts of these objects to the exclusion of others, and welcomes or rejects, i.e. *chooses* from among them, at all times.

Character (1) argues against viewing a "thought" as some kind of "entity" or "thought atom." James writes, "The universal conscious fact is not 'feelings and thoughts exist,' but 'I think' and 'I feel'." [JAME2: 147]. This characteristic shows up most strikingly in cases of abnormal psychology and, in particular, in cases of hysterical neurosis [JAME2: 130-145]. In studying such cases, the existence of "secondary personal selves" was discovered:

These selves are for the most part very stupid and contracted, and are cut off at ordinary times from communication with the regular and normal self of the individual; but still they form conscious unities, have continuous memories, speak, write, invent distinct names for themselves, or adopt names that are suggested; and, in short, are entirely worthy of that title of secondary personalities which is now commonly given them [JAME2: 148].

Character (2) is James' starting point for his attack on "the celebrated theory of *ideas*"; specifically, it is Locke's theory of ideas, which he characterizes as "mental atoms and molecules" [JAME2: 150]. In James' view, "no [state of mind] once gone can recur and be identical with



what it was before. . . A permanently existing ‘idea’ or ‘*Vorstellung*<sup>2</sup>’ which makes its appearance before the footlights of consciousness at periodic intervals is as mythical an entity as the Jack of Spades” [JAME2: 149, 153]. The principal objection to postulating such a thing is its utter unobservability. James stresses the necessity of viewing the mental process as something continually growing, evolving, and modifying itself. He sees “thought atoms” as being incompatible with this view since he sees such a construct as fixed and unalterable, as indeed a “molecular” interpretation such as Locke’s would seem to be. It is more difficult to see how a “manifold model” such as Kant’s is incompatible with James’ view of thought being “in constant change.”<sup>3</sup>

The first two characters merely establish that “thought” is not equivalent to “concepts” or “ideas.” For James, thought is a *process* carried out *by* the mind *in* the brain. His remaining three characters constitute a description of this process. He begins by defining what he means by the term *continuous*.

I can only define 'continuous' as that which is without breach, crack, or division [JAME2: 154].

For thought to be characterized as sensibly continuous means [JAME2: 154]:

- 1.) That even when there is a time gap the consciousness after it feels as if it belonged together with the consciousness before it, as another part of the same self;
- 2.) That the changes from one moment to another in the quality of the consciousness are never absolutely abrupt.

The common whole in which these “parts” are connected is “*myself, I, or me*” [JAME2: 155]. The continuity of thought is a “stream of thought” in which that-which-was-before somehow lingers on into that-which-is-now. He likens thought to a “vibration” that decays over time, and which he tentatively, and rather vaguely, speaks of in terms of the possibility of a model based on brain activity and neural signaling.

The *rate* at which thought is perceived to change also enters into his theory and allows one to identify two general classes or “parts” within the stream of thought:

When the rate is slow we are aware of the object of our thought in a comparatively restful and stable way. When rapid, we are aware of a passage or relation, a transition *from* it, or *between* it and something else. . . Let us call the resting-places the 'substantive parts,' and the places of flight the 'transitive parts' of the stream of thought. It then appears that the main end of our thinking is at all times the attainment of some other substantive part than the one from which we have just been

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<sup>2</sup> *Vorstellung* ("representation" or "presentation") is a central feature of Kant's theory.

<sup>3</sup> In point of fact, I shall argue later in this treatise that Kant's manifold structure is entirely compatible with James' "constant change" model.

dislodged. And we may say that the main use of the transitive parts is to lead us from one substantive conclusion to another [JAME2: 157-158].

This view of thought has been likened to a bird which sometimes flies from one place to another (the transitive part), and sometimes lands briefly to roost upon some resting place (the substantive part). James points out the difficulty in recognizing the transitive part of thought, for when we try to contemplate it, we turn it from transitive to substantive.

The stream of thought is fundamentally shaped by what he calls *feelings of tendency*. James is critical of both “sensationalist” and “intellectualist” philosophers who fail to account for the role that feelings play in bringing about cognition.

(Probably) no one will deny the existence of a residual conscious affection, a sense of direction from which an impression is about to come, although no positive impression is yet there. . . The only name we have for all its shadings is 'sense of familiarity' [JAME2: 162-163].

These feelings of tendency are “among the *objects* of the stream [of thought], which is thus aware of them from within . . . It is, in short, the reinstatement of the vague to its proper place in our mental life which I am so anxious to press on the attention” [JAME2: 165]. Feelings such as this manifest themselves when, for example, we try to recall someone’s name or remember the lyrics of a song; we *know that we know* the name or the lyric, and we can recognize when a name comes to mind that is not correct. James uses the terms “psychic overtone, suffusion, or fringe to designate the influence of a faint brain-process upon our thought, as it makes us aware of relations and objects but dimly perceived” [JAME2: 167]. The relation of “members of thought” to a central topic or subject of thought is “felt in the fringe, and particularly the relation of harmony and discord, of furtherance or hindrance of the topic” [JAME2: 168].

Character (4) addresses the object of thought. This “Object” is thought’s “entire content or deliverance, neither more nor less” [JAME2: 178]. This is the starting point, and the fundamental reason for, James’ attack on “associationism” in psychology. The notion of the association of ideas appears in Locke’s theory, but assumes a place of major importance with Hume. The association of ideas is the pattern in which different items in consciousness occur together or in succession. Laws of association would play the same role in the study of conscious processes as “natural” laws do in the study of natural phenomena. Associationism is the belief that such laws exist or should exist. Hume maintained that the connection of ideas in the mind takes place by association, and he held that there were only three “principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause and Effect” [HUME2: 457].

For the associationists (among whom James mistakenly places Kant), the “manifold of ideas” is taken as comprised of individual ideas (each of which contains some meaning) and connections

of association. These connections, however, do not themselves add to the meaning contained in the ideas and are not ideas themselves.<sup>1</sup> Consequently, the meaning of a complex of associated ideas (the “Object” in James’ terminology) is given by the sum of the meanings contained within the constituent ideas.

James strongly disagreed with this view. “However complex the object may be, the thought of it is one undivided state of consciousness. . . (The) manifold of ideas has to be reduced to a unity. *There is no manifold of coexisting ideas*; the notion of such a thing is a chimera. *Whatever things are thought in a relation are thought from the outset in a unity, in a single pulse of subjectivity, a single psychosis, feeling, or state of mind*” [JAME2: 179-180]. Our perception of thunder is not a perception of thunder itself, but “thunder-breaking-on-silence-and-abolishing-it.” If I think “the pack of cards is on the table,” the thought is neither of cards, nor a pack, nor a table, but rather “the-pack-of-cards-is-on-the-table.” This is a single Object of thought, and its meaning is something other than the meaning of cards or pack or on-the-table.

I know there are readers whom nothing can convince that the thought of a complex object has not as many parts as are discriminated in the object itself. Well, then, let the word “parts” pass. Only observe that these parts are not the separate “ideas” of traditional psychology. No one of them can live out of that particular thought, any more than my head can live off my particular shoulders [JAME2: 181fn].

It is relatively easy to see the justification of James’ contention that a complex object contains a meaning that is different from the mere sum of meanings in the “parts . . . discriminated in the object itself.” Indeed, an example such as *the-pack-of-cards-is-on-the-table* rather clearly contains a “meaning” that is in no way congruent with the idea of some chimerical summation of meanings in individual constituents. It is rather more difficult, however, to accept the step he takes when he denies the validity of supposing that the mind contains separate representations (i.e. concepts or ideas) of the parts themselves if one does not endow these individual representations with meanings. And if one does allow this, what else would we call the connection of such parts in a new thought-object (e.g. *the-pack-of-cards-are-on-the-table*) but a manifold?

However, let us be clear about what is meant by this idea of a manifold, and what in this idea differs from the Lockean (or, better, Humean) manifold that James so clearly rejects. When James calls for the object of thought to be seen as a *unity*, this is a demand that the object be seen as something apart from any ideas of its instantiating parts. Furthermore, the thought *of* a particular part must itself be compound in some sense (e.g. as a unity of sensations). The concept of “table”

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<sup>1</sup> As we shall see later in this treatise, Kant views the connection of concepts and representations as being made by judgment, not association, and Kant's connections of judgment give meaning to the object of the connection. This is very different from Hume's model and quite consistent with James' "Object."

is without meaning unless this concept contains within it some representation of what a table *is*, i.e., some collection and arrangement of mental representations which, taken together in a particular way or form, *is* the description of the object “table.” James’ point is that we never consciously perceive these particulars as “simple ideas in themselves”; it is only by abstract analysis that we ever come to have a clear idea of these “parts.” The *simple* idea, as an “atom” of thought, is what James calls chimerical.

And if the simple idea is not a valid model of thought, then compound ideas formed by an associative “manifold” of simple ideas is also not a valid model. The representation of objects of thought is, therefore, a representation that the Lockean - Humean “atomic – molecular” model of knowledge is not adequate to produce. The theory of mind calls for a more elegant model than this naive picture, something in which the unity of the object can be represented in its own right, and in which the continuity in the stream of thought may be simultaneously represented.

Character (5) addresses the property of mind, as the phenomenon of thought production, to be *selective*. From the raw organs of sense, to sensation, to perception, to the rational connection of the empirical combinations of objects, we find in place an unceasing sorting activity that gives preference to some factors and rejects others. From the flood of sense data, mind is able to winnow out what is to go into an object of thought, and what is to be ignored or suppressed. Since we have absolutely no ground for speculating that this selection process is somehow presented along with the sensations themselves, character (5) is a statement of mind’s *agency* in the formation of thoughts.

Attention . . . out of all the sensations yielded, picks out certain ones as worthy of its notice and suppresses all the rest. . . And then, among the sensations we get from each separate thing . . . mind selects again. It chooses certain of the sensations to represent the thing most *truly*, and considers the rest as its appearances, modified by the conditions of the moment. . . The mind chooses to suit itself, and decides what particular sensation shall be held more real and valid than all the rest. . . Thus perception involves a twofold choice. Out of all the present sensations, we notice mainly such as are significant of absent ones; and out of all the absent associates which these suggest, we again pick out a very few to stand for the objective reality *par excellence*. We could have no more exquisite example of selective industry. . . Consciousness consists in the comparison of these with each other, the selection of some, and the suppression of the rest by the reinforcing and inhibiting agency of attention [JAME2: 184-187].

Critics of pragmatism often seize on this point to denounce the philosophy of pragmatism as a philosophy in which “the mind can carve out of the flow of experience whatsoever it pleases without let or hindrance from reality” [JOAD: 458]. If the theory of pragmatism is true, they ask, then aren’t the distinctions made by the mind completely arbitrary and, if so, does this not require a different conception of the meaning of the word “truth”? [JOAD: 448-464].

These objections are, in my opinion, misplaced and are the result of inflating a simple

observable fact, a *particular* phenomenon of mind, into a *universal* proposition. Character (5) is not, in my opinion, a universal law of mind from which other conclusions may be deduced; it is a fundamental *fact* of mind that any successful theory of mind *must explain*. Indeed, I contend that all five of James' "characters of thought" fall into this category, as observables that must arise as *consequences* from a consistent theory of mind. And I think James regarded them as such.

### Genetic Epistemology

Our final representative of the themes of mind is the great Swiss psychologist Jean Piaget (1896-1980). Like James, Piaget was one of those rare first-rank scientists who also paid attention to the philosophical questions attending his research. Piaget called his philosophy "genetic epistemology" and is reported to have preferred being called a genetic epistemologist to being called a psychologist. Philosophy, in his view, is severely limited if its proposed solutions cannot be subjected to experimental tests and so, like James, we find in his work a blend of philosophy with experimental science. Unlike James, Piaget produced an elaborate and detailed theory of *how* intelligence develops. In the introduction to Piaget's *Epistemology and Psychology of Functions*, Sunier writes

Reading a book by Piaget is like entering a system. To a large extent he and his collaborators (but particularly he) are builders of an impressive structured whole - an experimentally based and controlled set of truth judgments about knowing and knowledge. . . Always one meets a number of fundamental concepts which have arisen through many decades of experimental work with hundreds of collaborators, and from very productive thinking [PIAG3: vii].

*System* is an excellent word to describe Piaget's theory. He sees *intelligence* as

an organizing activity whose functioning extends that of the biological organization, while surpassing it due to the elaboration of new structures . . . If the sequential structures due to intelligent activity differ among themselves qualitatively, they always obey the same fundamental laws. In this respect, sensorimotor intelligence can be compared to reflective or rational intelligence and this comparison clarifies the analysis of the two extreme forms [PIAG1: 407].

We find throughout Piaget's work an emphasis that the biological organization and the mental organization of an intelligent being are not to be separated into totally independent aspects. Piaget does not attempt to pin down "mind" to particular "brain" functions, but he leaves little room for us to doubt that he viewed mind and brain as complementary aspects of the same phenomenon. He stresses the unbroken unity of the biological and the psychological dimensions of intelligence, a unity in which mind appears as an "organizing activity" intimately tied to early genetically-endowed reflexes and sensorimotor faculties.

Everyone acknowledges a certain number of elementary truths which are those of which we speak here: that the living body presents an organized structure . . . constitutes a system of interdependent relations . . . works to conserve its definite structure . . . and in the last analysis tends to impose on the whole universe a form of equilibrium dependent on that organization. . . (It) can be said that the living being assimilates to himself the whole universe, at the same time that he accommodates himself to it. . . It is therefore permissible to conceive assimilation in a general sense as being the incorporation of any external reality whatever to one part or another of the cycle of organization. . .

Now, and this is our whole hypothesis, it seems that the development of intelligence extends that kind of mechanism instead of being inconsistent with it [PIAG1: 407-408].

Just as an organism's biological functions adapt to the physical environment to attain a state of biophysical equilibrium, so also do the organism's *mental* functions adapt to the data of experience to achieve a state of mental equilibrium. Intelligence *extends* the physical adaptations of the organism "by constructing mentally structures which can be applied to those of the environment" [PIAG1: 4]. In the early stages of life intelligence is unremittingly *practical*. The mental constructs of intelligence take the form of sensorimotor "schemes" in a manner very reminiscent of James' Object of thought. To some extent, the structures that are possible depend on biological maturation, but these structures are extended by intelligence far beyond what can be explained by maturation alone.

The development of these mental structures takes place gradually, in ever more elaborate stages that can be classified broadly in terms of capabilities that the organism *develops*. Although the exact boundary between successive stages is "fuzzy" rather than absolutely crisp, Piaget finds nevertheless that human beings are remarkably alike in the time required to pass through these stages, and *absolutely alike* in the *order* in which they pass through them. There is some statistical variation in the time required to pass through each stage, but there is no variation in the order in which these stages occur. One classification of these stages, and the average ages at which they occur in human development, is as follows:

1. Sensorimotor intelligence (age 0 to 2 years);
2. Pre-operational thought (age 2 to 7 years);
3. Concrete operations, i.e., concrete logical thought (age 7 to 11 years);
4. Formal operations, i.e., abstract logical thought (age 11 to 15+ years).

Affective development, i.e., the development and elaboration of emotions, interpersonal feelings, social skills, moral values and so on, occur in parallel with these stages and also exhibit stages of development.

Furthermore, within each stage it is possible to identify sub-stages. This is particularly striking during the sensorimotor intelligence stage where Piaget identifies six stages of development. These stages, and some of their characteristics, are as follows [PIAG1].

Sensorimotor stage I: The use of reflexes (average age 0 to 1 month);

- Sensorimotor stage II: First acquired habits and the primary circular reaction; development of hand-to-mouth coordination (average age 1 to 4 months);
- Sensorimotor stage III: Development of secondary circular reactions and procedures designed to make interesting experiences last; development of hand-eye coordination (average age 4 to 8 months);
- Sensorimotor stage IV: Coordination of secondary schemes and their application to new situations; development of mobile schemes (average age 8 to 12 months);
- Sensorimotor stage V: Development of tertiary circular reactions and the discovery of new means through active experimentation (average age 12 to 18 months);
- Sensorimotor stage VI: The invention of new means through purely *mental* combinations; development of representative causality and inferences of cause and effect relations (average age 18 to 24 months).

During mental development, there are factors that are variable (the mental constructs or schemes) and factors that are invariant. These latter factors comprise the functions by which intelligence operates and without which mental development would not take place. In this view, Piaget's "functional invariants" play the same role as Kant's functions of knowledge *a priori*. However, Piaget states his theory in terms of activities rather than in terms of Kant-like elements of transcendental logic. In a real sense, Piaget and Kant look at the same problem from two different directions, with Piaget viewing things in terms of an overall picture of what could be called *operations of empirical reasoning*, while Kant looks at it from the viewpoint of the primitives of *pure* reason. I see these two views as complementary, i.e., as different sides of the same coin, provided we interpret Kant's theory as a theory of functional capacities rather than from either a Lockean or from a rationalist (i.e., innate ideas) perspective.

The central theme of Piaget's theory is *equilibration by adaptation* [PIAG19]. To briefly explain what this means, we must look at how Piaget defines his fundamental elements. The first of these is *assimilation*. Assimilation is the treatment or modification of "reality data" in such a way that this "reality data" become incorporated into existing mental structures constructed by the subject previously. Every newly established connection to "reality data" is integrated into an existing mental structure [PIAG15: 5].

The second element is *accommodation*. Accommodation is the modification of the existing schemes to "fit with" the "reality data" [PIAG15: 6]. Comparing these two elements, assimilation is *generalizing*, i.e., it subsumes "reality data" in a generalized structure that provides context. Accommodation, on the other hand, *specializes*, i.e., picks out what is unique and different in particular constructs subsumed under more general structures.

*Equilibration* is a *process* that acts to produce a necessary balance between assimilation and accommodation. If assimilation were absolute, *nothing would be distinguishable*. If accommodation were absolute, *everything would be different and unconnected to anything else*. The process of equilibration is therefore a synthesis between generalization and specialization to

produce what we might call an affinity of particulars under the general. The most basic postulate in Piaget's theory is that the process of equilibration is at work at every stage of development and throughout all of mental life. He gives two fundamental postulates of equilibration:

*First Postulate:* Any scheme of assimilation tends to feed itself, that is, to incorporate outside elements compatible with its nature into itself.

*Second Postulate:* The entire scheme of assimilation must alter as it accommodates to the elements it assimilates, that is, it modifies itself in relation to the particularities of events but does not lose its continuity [PIAG19: 7-8].

Thus, the process of equilibration is one of adaptation of existing mental structures to fit new experiences and, simultaneously, the filtering of these experiences to fit within the existing framework. Piaget observes that this adaptation is performed *cyclically*, that is, through what he calls *circular reactions* or behaviors that tend to reinforce new experiences through repetition of these experiences. This behavior is particularly striking and observable in infants (e.g., thumb sucking, vocalizations, etc.). A new situation produces "nonbalance" in the subject's state of equilibrium, which the subject tries to re-establish through the process of equilibration. To do so, he initiates a cycle of adaptation (circular reaction) that attempts through assimilation and accommodation to restore "balance." If the initial nonbalance is not too severe, i.e. if the new "reality data" is sufficiently similar to an existing scheme, this cycle of adaptation will be successful. On the other hand, if the nonbalance is too great, the cycle of adaptation *ruptures* and the subject "loses interest" in the new reality data [PIAG1: 4-13].

### Summary of Theme VII

In summary, the views expressed in theme VII look at the phenomenon of mind from a predominantly empirical viewpoint but not an exclusively empirical viewpoint. Mind is viewed as the totality of mental processes and makes itself manifest through meaningful and purposive behaviors that open up the possibility of experimentally testing theories of mind. In this theme, we find mind and body viewed as two sides of the same thing, namely, living *organism*. There is no attempt to equate mind with "soul" or to treat mind as somehow disassociated with body. James is openly agnostic about such issues and deems them irrelevant to the purposes of psychology. Piaget maintains complete silence on these issues, which suggests that he views such questions as outside the realm of science altogether. Both men avoid becoming entangled in issues of "pure" philosophical theory, and keep one foot always firmly planted on experimental soil.



## § 7. The Phenomenon of Mind

The preceding sections have sketched the major themes of 25 centuries of thought on the question of what constitutes mind. What lessons does this history contain for us, and where do we go from here?

First of all, we can note that certain common features present themselves through all these various themes. Of these, perhaps the most fundamental is that mind, as far as being some sort of “thing” is concerned, is a supersensible object. Only the early materialist views attempted to find a corporeal object that could be called mind, and we have seen that even this line of supposition was forced eventually to retreat to a position of functionalism which declares that mind is not corporeal. Extreme materialism at this point denies thing-like status to mind, but this denial only seems acceptable if the denial of existence to mind is denial of *Existenz* in the corporeal sense only. After all, does science deny that “heat” exists simply because “caloric” theory was refuted?

In the view of some people, mind’s lack of corporeal matter and its supersensible nature remove it from the arena of legitimate scientific investigation. On the contrary, it is *precisely* this supersensible nature that *demand*s a scientific approach to the theory of mind. Science is not an activity comprised solely of the cataloging of facts. Science is a discipline in which the diversity of observed facts are brought into unity through theory, and scientific theories always involve ideas of supersensible objects (mass, charge, probability amplitudes, the “rational man”, “societies”, etc.). There is indeed much truth in the dictum that science is the careful consideration of the supersensible while excluding explanations that rely upon the supernatural.

This means that a scientific treatment of mind must involve both a rational part and an empirical part. Because mind *is* supersensible in character, our understanding of the phenomenon of mind can come to us only through particular manifestations such as *thinking*, *feelings*, *purposive action*, and so on. In short, we must study mind as a phenomenon. From this view, mind becomes a transcendental object, the idea of which consists of rational principles that tie together the observable manifestations we ascribe to the object *mind*, and *which make definite predictions that can be subjected to experimental test*.

With regard to this last point, we saw earlier what Feynman had to say about the requirement for theory to make *definite* statements about its consequences (§6). Piaget expressed this same point from a slightly different direction:

What I have said so far may suggest that it can be helpful to make use of psychological data when we are considering the nature of knowledge. I should like now to say that it is more than helpful; it is indispensable. In fact, all epistemologists refer to psychological factors in their analysis, but for the most part their references to psychology are speculative and are not based on psychological research. I am convinced that all epistemology brings up factual problems as well as formal ones,

and once factual problems are encountered, psychological findings become relevant and should be taken into account. The unfortunate thing for psychology is that everybody thinks of himself as a psychologist. . . As a result, when an epistemologist needs to call on some psychological aspect, he does not refer to psychological research and he does not consult psychologists; he depends on his own reflections. . . The first principle of genetic epistemology, then, is this - to take psychology seriously. Taking psychology seriously means that, when a question of psychological fact arises, psychological research should be consulted instead of trying to invent a solution through private speculation [PIAG17: 7-9].

If we are to study mind as a phenomenon, what manifestations found in experience are to be considered relevant to the mind phenomenon? The various themes we have examined all draw a boundary of some sort that separates the idea of “mind” from certain experiences and grants inclusion to others. We may well demand that such partitioning of the question, prior to the investigation of the topic, be justified if it is to be permitted, or else that such a partitioning not be permitted if no sufficient justification can be given. Knowledge, thinking, and intelligence seem more or less universally agreed to as proper mind topics; memory, “passions”, and sensibility have been disputed as to the correctness of their inclusion as mind topics. However, the exclusion of these topics cannot be justified simply on the basis of making the question easier to answer. If ease of answering a question were a legitimate criterion, we could dispense with science altogether and “explain” everything that happens in the world as the will of God.

We need to ask ourselves: To what extent does a science define its own topic, and to what extent is its topic defined for it by considerations that lie outside the scope of that science? For example, physics makes no attempt to incorporate ethics, jurisprudence, or theology into its discipline. In its beginnings, these topics were declared outside of its scope because they were not seen as consistent with the marks of the sort of natural phenomena a physicist was interested in studying. Physics has not argued with this choice since nothing that has been developed within its discipline has given even a breath of suggestion that this partitioning is incorrect. On the other hand, physics *has* subdivided itself over time; from its beginnings as “the science of nature in general” (φυσικῆς), it has spun off chemistry, biology, and so forth on its route to becoming what we today call *physics*. Along the way, it has also done away with failed sciences, such as astrology, as its own methods have driven it to do so.

And so we find that, once established, a science can find reasons to be self-limiting as to the scope of its own topics. In its beginning, on the other hand, a science is unable to limit itself and its borders must be established otherwise. As Aristotle remarked,

The first problem concerns the subject which we discussed in our prefatory remarks. It is this - whether the investigation of the causes belongs to one or to more than one science, and, if to one, whether this should survey only the first principles of substance, or also the principles on which all men base their proofs . . . And if the science in question deals with substance, whether does one science deal with all substances, or more than one, and if more, whether all are akin, or must some of them be called forms of wisdom and the others something else? [ARIS7: 1573 (995<sup>b</sup>5)]

and elsewhere,

When the objects of an inquiry, in any department, have principles, causes, or elements, it is through acquaintance with these that knowledge and understanding is attained. For we do not think we know a thing until we are acquainted with its primary causes or first principles, and have carried our analysis as far as its elements. Plainly, therefore, in the science of nature too our first task will be to try to determine what relates to its principles.

The natural way of doing this is to start from the things which are more knowable and clear to us and proceed towards those which are clearer and more knowable by nature; for the same things are not knowable relatively to us and knowable without qualification. So we must follow this method and advance from what is more obscure by nature, but clearer to us, towards what is more clear and more knowable by nature.

Now what to us is plain and clear at first is rather confused masses, the elements and principles of which become known to us later by analysis. Thus we must advance from universals to particulars; for it is a whole that is more knowable to sense-perception, and a universal is a kind of a whole, comprehending many things within it, like parts [ARIS6: 315 (184<sup>a</sup>10)].

If we accept the premise that the object “mind” has “principles, causes, or elements,” let us heed Aristotle’s dictum and begin our inquiry into the phenomenon of mind with “what is knowable and clear to us” even though this is “more obscure by nature”; if the principles we uncover as we move toward “what is more knowable by nature” then provide us with “qualifications,” we can at that point allow our inquiry to limit itself. Our starting point is then the common idea of the mind, e.g.:

**mind**, *n.* [ME. *mind*, *mynd*; AS. *gemynd*, memory]:

1. memory; recollection or resemblance; as, this brings to *mind* another story.
  2. (a) what one intends, wishes, or wills; purpose or desire; as, I have a *mind* to go; (b) what one thinks; opinion.
  3. (a) that which thinks, perceives, feels, wills, etc.; seat or subject of consciousness; (b) the thinking and perceiving part of consciousness; intellect or intelligence; (c) all of an individual’s conscious experiences.
  4. the intellect in its normal state; reason; sanity.
- syn. - soul, spirit, intellect, understanding, opinion, sentiment, judgment, belief, choice, inclination, desire, will, liking, purpose, impetus, memory, remembrance, recollection.

These dictionary “definitions” lack the rigor and exactitude one expects from a well-posed question, but the well-posed question belongs to the *established* field of inquiry. To study the phenomenon of mind is part and parcel with developing an understanding of what well-posed questions *may* and *must* be asked. At the beginning, we must allow that all we have to guide us is our principle that the supersensible mind requires both rational and empirical considerations, i.e., that the foundation of our inquiry be drawn from the *unified* themes of mind.

Vague though this beginning may be, it is surprisingly fecund when we consider what we commonly take as the meaning of the descriptive terms given above. Let us look at where some of the terms above lead us.

**intelligence**, *n.* 1. the ability to learn or understand from experience; the ability to acquire and retain knowledge; mental ability.  
2. the ability to respond quickly and successfully to a new situation; use of the faculty of reason in solving problems, directing conduct, etc. effectively.

**knowledge**, *n.* 1. clear and certain perception of something; the act, fact, or state of knowing; understanding.  
2. cognizance, recognition.  
3. acquaintance with facts; range of awareness or understanding.

**reason**, *n.* 1. proper exercise of the mind.  
2. the power of comprehending, inferring, or thinking in orderly, rational ways.  
3. a sufficient ground of explanation, especially, a principle or law that supports a conclusion or explains a fact.  
4. a rational ground or motive.

**think**, *v.* 1. to bring the intellectual faculties into play; to use the mind for arriving at conclusions, making decisions, drawing inferences, etc.  
2. to judge; to conclude; to decide; to hold as a settled opinion.

**judgment**, *n.* 1. the act of judging; the act or process of the mind in comparing its ideas to find their agreement or disagreement, and to ascertain the truth; the process of examining the relations between one proposition and another.  
2. the ability to come to an opinion of things; the power to compare ideas and ascertain the relations of terms and propositions.

**understanding**, *n.* 1. the power of comprehending, especially the capacity to apprehend general relations of particulars.  
2. the power to make experience intelligible by applying concepts and categories

**comprehend**, *v.* 1. to grasp the nature, significance, or meaning of.  
2. to include as an integral part.

One might object that these “definitions” are still vague, but that is not the point I wish to make here. The point is that, imprecise as our understanding may be, we each “know” a great deal about what *we* mean by “mind”; we could easily continue to trace the terms within the expressions above until their dictionary descriptions closed back on themselves by becoming self-referencing (as all dictionary “definitions” of supersensible objects eventually do), but that will serve little point here. Let the point rest here on Aristotle’s dictum: we know enough about the phenomenon of mind to be able to know when we have adequately described it by theory, and to know when we have not. An artificial limitation imposed by a crisp definition of mind serves no useful purpose at this point in our inquiry and, indeed, can only hurt the completeness of the theory by limiting our topic too soon. If our inquiry turns out to be doomed to come up against some insurmountable barrier to further understanding, let that limit be something fundamental to the nature of the phenomenon of mind and not an artificial restraint imposed before we have properly begun the inquest.

## § 8. The Doctrine of the Organized Being

No department of human inquiry can stand by itself, sharing no relationship to other elements of knowledge, and hope to be either fecund or even interesting. If we are to examine and study the phenomenon of mind, we must place the object of our inquiry in relationship to other things in our body of knowledge. This positioning of mind is, in this treatise, called the doctrine of the Organized Being.

That mind exists, as a transcendental object in some sense of the word reality, follows from Descartes. Kant's refutation of subjective idealism adds to this the rational ground for accepting the *Dasein* of the external world as an equally valid fact. Inasmuch as each one of us comes eventually to partition the world into a "me" and a "not-me" (even though this division does not exist for any of us at birth), we are equally well justified in dividing the external world into a corporeal entity which we know as our own body, and a world consisting of everything else. This latter term we will call the **environment**.

Now, this division of the world into three parts is a *logical* division epistemologically, for at no time do we experience any one of these three parts without the others being present. Furthermore, while Kant proves to us that we have sufficient reason to posit the *Dasein* of an external world, he also warns us that this reason can hold only inasmuch as the external world is an object of our own outer sense, and consequently "the external" must enter our theory as *appearance* rather than as certain and complete knowledge of *things-in-themselves*. Our theory of mind must be based on this and not on the sort of metaphysical reasoning that led Leibniz to the monad. It follows from these premises that we must not view our three-way division of the world as a *real* division (at least, not at the beginning of our theory). Putting this another way, we are not justified in severing *all* connections between mind, body, and environment.

The consequence of this requirement is that we must maintain this division as merely logical for so long as we do not discover grounds for making a real division. We can accomplish this logical division while maintaining a real unity between mind, body, and environment if we make the following proposition: mind, body, and environment coexist in a state of complete reciprocity of relations with each other. This principle is merely a statement of something we already have sufficient reason to accept, namely, that the external can affect mind and mind can affect the external.

Now, the reciprocity between body and environment lends itself to study by the physical sciences, and we have no reason to suppose that this physical reciprocity need involve the agency of mind insofar as body-to-environment or environment-to-body interaction is concerned. This is a sufficient justification for us to eliminate this sort of interaction from the scope of mental

physics. But the situation involving reciprocity with mind is of a different sort, for mind, being supersensible, is *not* an object for which we have any objectively valid idea for the possibility of describing it through the disciplines of physical science.

It is at this juncture where we enter the domain of mental physics. To mark this transition, and to take some measure of safeguarding ourselves from confusion, let us apply some special terminology to designate the objects of mental physics theory. Let us call our *idea of mind* by the name *nous* (νοῦς); let us call our *idea of body* by the name *soma* (σῶμα). Now, in our logical division above, we are led to consider two type of reciprocity relations involving mind, namely, mind-body reciprocity and mind-environment reciprocity. However, if we examine the nature of our logical division of the external world into body and environment, it is clear that this logical division rests upon a simple fact: that which lies in the external world that mind can immediately affect is identical to that which we call our body; that in the external world which our mind cannot affect without the mediating agency of the body is what we call environment. Consequently, of the two possible reciprocity relations just given, it is only mind-body reciprocity with which we need be concerned.

In terms of theory, then, we require some mediating principle, i.e. some set of what we may term **animating principles**, to represent the reciprocity we must admit to exist between *nous* and *soma*. A word that seems especially appropriate for designating these animating principles is *psyche* (ψυχή), and we shall therefore adopt the usage of this term in this manner. This triad of logical elements – *nous*, *soma*, and *psyche* – considered as a unity will be called the Subject. Because the real relationship between these elements is one of complete reciprocity, i.e., a relationship of *community* exists among them, this structure constitutes what Kant has called an Organized Being [KANT5: 218-222 (289-295)]. As the provider of context to the theory of a mental physics, the Organized Being model, illustrated in Figure 1.8.1, constitutes the framework within which the entire theory of a mental physics is to be developed.

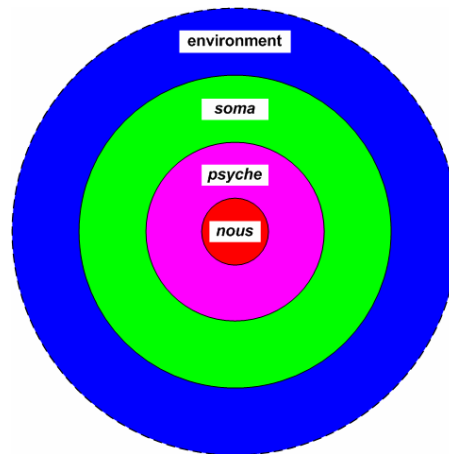


Figure 1.8.1: The Organized Being Model