

THE  
“GOD”  
PART  
OF THE  
BRAIN

A Scientific Interpretation of  
Human Spirituality and God

MATTHEW ALPER



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# THROWING ROCKS AT GOD

“The Caterpillar and Alice looked at each other in silence for some time; at last the Caterpillar took the hookah out of its mouth, and addressed her in a languid, sleepy voice.

‘Who are you?’ said the Caterpillar.

Alice replied rather shyly, ‘I—I hardly know, sir, just at present—at least I knew who I was when I got up this morning, but I think I must have been changed several times since then.’”

—LEWIS CARROLL

**B**y the time I was twenty-one, my quest for knowledge of God had taken several unexpected turns. In this time, I had searched the world’s myriad religions only to find myself frustrated by a gamut of flaws and inconsistencies in all their logic. I had investigated the various paranormal phenomena only to encounter a trail of false claims and chicanery. I had experimented with the mind-altering effects of psychedelic

drugs as well as transcendental meditation, only to undergo a series of distorted sense-experiences, none of which had brought me any closer to acquiring verifiable knowledge of any spiritual reality or God. As a matter of fact, if anything, they had only served to draw me farther away. This was due to the fact that while exploring the effects of LSD, I had a bad trip that led to a severe clinical depression compounded by a dissociative, depersonalization, and anxiety disorder. For a year and a half, I suffered this unfortunate state until, finally, with the aid of pharmacological drugs, I was restored to my previous, relatively healthy self.

Though it may have come at a very high price, I nevertheless managed to garner some extremely valuable information from this otherwise wretched experience, information regarding the nature of my allegedly immortal human soul.

According to the various belief systems (religions) I had thus far encountered, the human soul was supposed to be spiritual in nature, a fixed and permanent agent, unalterable and everlasting. Again and again, I was told that when I died, though my physical body would perish, "I"—the sum of my conscious experience, the essence of my thoughts and feelings, what was perceived as constituting my soul or spirit—would persist for all eternity. The fact, however, that my conscious self had been so drastically altered convinced me that there was no fixed or eternal essence in me.

Twice in a year and a half, I had undergone two complete transformations of my so-called eternal self. First, my conscious self was transformed into something other than it previously had been by psychedelic drugs. Then, a year and a half later, my original self was restored, this time by a drug known as a monoamine oxidase inhibitor (MAOI). But I thought consciousness was supposed to be conceived in spirit—fixed, eternal, immune to the influences of physical nature. If this were true, how was it that the core of my conscious experience had been altered, twice now, by ingesting physical substances? How was it that a combination of molecules—raw matter—could affect something as allegedly ethereal as consciousness, that which was supposed to represent my immutable,

transcendental soul? To believe that matter could affect one's spirit, that it could impact upon the soul, would be the equivalence, it seemed, to believing that one could throw rocks at God. If spirits or souls truly existed, it would seem they should be impervious to material influence.

The fact that my conscious self—my allegedly immortal soul—was susceptible to the effects of chemical (physical) substances convinced me that human consciousness must be a physical entity governed by strictly physical processes. If this was true, then in order to gain a deeper understanding of the nature of consciousness—what I previously believed might constitute a soul—I would need to conduct an investigation into the nature of the physical sciences.

Up until this point, I always had the greatest respect for the physical/natural sciences. I was always impressed by their ability to rationally explain most any phenomena as well as to lead to the creation of tools and technologies that worked to make our lives easier. Whereas in the past, however, in which I had admired the sciences, I now revered them. Science had saved my life. I was indebted to it. God didn't save me. I didn't save me. Science, the tool of reason, had saved me. I was my own living proof that science worked. And so, the same faith that many placed in a god or religion, I now placed in science. Simply, it was a paradigm which brought verifiable results. Not that I didn't have faith in science before this. Every time, for instance, I flipped a light switch, one could say I had faith the lights would go on. The difference was that, whereas in the past I had taken my faith for granted, I was now a staunch believer.

As I saw it, science had resolved the riddle of the human soul. Science had proven it could come up with chemical formulas that could manipulate the contents of one's cognitions, emotions, and perceptions in almost whatever way it saw fit. It could electrically or chemically stimulate parts of one's brain in such a way that it could make one passive or aggressive, tranquil or manic, happy or sad. In essence, science could alter and manipulate one's cognitive and emotional states as if pulling the strings on a marionette.

As a result, I was now convinced that the mind, which I previously believed to constitute my transcendental soul, instead represented the workings of my physical organ, the brain. There was no soul. There was no ghost in the machine. My thoughts—human consciousness—were not the manifestation of some ethereal force or will but rather the consequence of synaptic transmissions, electrical and chemical signals being registered throughout my brain, generating a host of sensations, perceptions, emotions, and cognitions in me—pure neuromechanics. Consequently, as far as I was now concerned, the riddle of the human soul had been solved. From hereon, I would interpret the origin of all perception, sensation, emotion, and cognition from a strictly neurophysiological—that is, scientific—perspective.

As secure as I now was that there was no such thing as a transcendental soul, I still found myself plagued by that more essential problem of God's existence. As God supposedly constituted the embodiment of all things spiritual, not until I possessed some rational explanation through which I could resolve the problem of His existence could I be absolutely certain there was no such thing as a transcendental/spiritual reality. And as long as it was possible that God might exist, it was therefore also possible that I possessed a transcendental soul. Consequently, before I could commit to anything, I needed to resolve the greater and all-encompassing problem of God.

As the physical sciences had helped me to rationally interpret the underlying nature of consciousness, I now wondered if it would be possible to apply this same tool of reason to resolve that ever-persistent problem of God. Could the physical sciences crack that nut as well? Up until now, it hadn't come close. From biologists to astro- and quantum physicists, no one had ever advanced anything resembling a scientific interpretation of God. But why was this? Did God truly exist only beyond our grasp, beyond the range of human comprehension? Or was there a physical solution, only no one had discovered it yet?

As a now firm believer in the methods of science, I felt there must exist a rational explanation for everything. As a scientific idealist, I

found myself inclined to believe that nothing was beyond our reach. If it could be dreamt of, it could be reasoned through.

My course was now defined. I would be a scientist. I would accumulate all the scientific knowledge I possibly could and then, once this was accomplished, once I had familiarized myself with all the various disciplines, only then could I justifiably recommence with my quest for knowledge of God.

But wait! What if it should turn out that science was just another form of psychological indoctrination, a new religion for a new world? Granted, the fruits of science had helped me out of a dark depression, but what if it was just my faith in science that healed me, the result of some sort of placebo effect, no more or less valid than when one's maladies are cured by a religious faith healer? What if science was no more founded in truth than any of the other self-glorified creeds I had thus far encountered? Perhaps scientists were just the high priests of a new faith, one that, instead of referring to gods, referred to particles that were just as incomprehensible and elusive. Perhaps science was just another disingenuous paradigm, a new mythology for the modern age. Then again, perhaps it was not. Perhaps science was a genuine tool by which human beings could gain a clearer and more distinct insight into the underlying nature of reality. So which was I to believe? How could I prove that scientific facts were any more reliable than religious ones? It was time to define my terms, time to investigate the investigator. Before I would blindly place my trust in the scientific process, before I submitted myself to a lifelong quest for a scientific interpretation of God, I would first have to investigate the nature of my newfound faith. "What," I had to ask, "is science? How does it work?"



# WHAT IS SCIENCE?

“Science is the attempt to make the chaotic diversity of our sense-experience correspond to a logically uniform system of thought.”

—EINSTEIN

“There is no such thing as absolute certainty, but there is assurance sufficient for human life.”

—JOHN STUART MILL

**I**n order to justify my quest for a scientific explanation of God, I first had to conduct an investigation into the nature of science itself. This is what I found:

What is science? Since this is a rather large question, I will do my best to explain it in the most conceptual terms I am able. Before I begin, however, let me state that no matter how much faith one places in science, he must realize that at no time can it ever represent anything more than just another belief system, just another way by which humans can choose to interpret reality. I say this not out of any lack of conviction but only because not even science can

guarantee anything with absolute certainty. Nothing can! Who, for instance, could say with total assuredness that his experiences are anything other than an illusion or a dream? As written over two thousand years ago, "Once upon a time, I, Chang-Tzu, dreamed I was a butterfly, fluttering hither and thither when suddenly I was awakened. Now I do not know whether I was a man dreaming I was a butterfly, or whether I am a butterfly now dreaming that I am a man." Nothing is certain! No wonder one of the wisest men to walk the Earth, Socrates, lived by the principle that all he knew was that he knew nothing at all.

Nevertheless, with that necessary qualifier aside, let's presume for the moment that this experience we call life isn't a dream. Let's suppose for the moment that we do exist as, more or less, what we imagine and that our experiences are, for the most part, "real." Even so, it is still impossible for us to ever possess absolute knowledge of anything. Let me elaborate.

The only means we, as human beings, have to interpret reality is through information acquired through our physical sense organs. Through our eyes, we absorb photons of light; we see the world. Through our ears, we absorb vibrations; we hear it. Through the nerve endings that cover the surfaces of our skin, we experience differences in pressure and temperature; we feel the world. Through our noses and tongues, we absorb chemicals; we smell and taste it. Before we acquire knowledge of our world, all information must first pass through these physical sense organs. Consequently, our sense organs play a critical role in determining the manner in which we perceive reality. As each species possesses its own unique set of sense organs, each must therefore experience and, consequently, interpret reality from its own unique and relative perspective.

Common houseflies, for instance, have a different mechanism from ours by which they absorb light—they possess a different set of organs that we would call eyes. As flies sense the world differently from us, they must consequently interpret it differently. Just as a fly sees the world from its own unique fly perspective, we see the world from our unique human perspective. Whereas flies possess fly

knowledge, humans possess human knowledge. And just as a fly can only possess fly knowledge and no other, a human can only possess human knowledge and no other. We must therefore accept that our interpretation of reality is no “better” or more “real” than a fly’s. It’s simply different.

Moreover, it’s not just the manner in which our physical sense organs absorb information that determines our perspectives of reality but, just as significantly, the manner in which our brains then process that information. For instance, what does it mean when we say that we “see” an apple? First, photons of light which are reflected off an apple are picked up by our retinas, which convert that information into electrical signals that are then processed by our brain. Consequently, all that we perceive as “real” is nothing more than electrical signals as they are interpreted by our organ, the brain. When we eat an apple, we “feel” its texture; we “smell” its aroma; we “taste” its flavor. Not until we integrate all of these various sense-impressions is our experience transformed into a coherent perception of the apple as a whole. Without such an internal processor through which to coordinate this medley of sense-impressions we constantly receive, it would be impossible for us to make sense of our experiences.

In the least sophisticated organisms, such internal processors constitute a single neural pathway. As life evolved, so did this single pathway into an integrated neural network that converges at a central location called a ganglion. A more complex version of the ganglion, we call a brain. Ours, the human brain, represents the most sophisticated processor of all. Because each organism possesses its own unique processing mechanism, its own central nervous system or brain, each organism must therefore interpret reality from its own unique and relative perspective.

Furthermore, it’s not just the different species that perceive and interpret reality from their own unique perspectives but also each individual within each species. Among our own species, each individual possesses his own unique combination of sense organs—his own unique combination of ears, eyes, nose, mouth, and skin. In

other words, no two humans have the exact same set of sense receptors. For example, because the physical mechanics of my eyes are slightly different from my neighbor's, I will experience the color red differently than he does. In an even more extreme example, someone with damaged cone receptors, who is totally colorblind, will consequently experience what I perceive as bright red as toneless or gray. Because each individual perceives the world from his own unique perspective, each of us must consequently maintain our own unique interpretation of reality.

Just as each individual's sense organs vary, so does each individual's processor or brain. Just as no two people possess the same exact eyes, no two people possess the exact same brain. Therefore, not only does each individual acquire sensual data differently, but each of us then processes and therefore interprets that same data in his own unique way.

In addition to these factors, we must also take into consideration the fact that each individual lives a unique set of life experiences. As this, too, will impact upon one's cognitive development, it also affects the manner in which one will interpret reality.

There are therefore three variables that determine the manner in which each species (as well as each individual within each species) interprets reality. These include the physical nature of an organism's sense organs, the physical nature of its processor (brain), and the content of its life experiences.

With these three variables in mind, let's imagine that two amoebae, two houseflies, two chimpanzees, and two humans are all perceiving the same sunrise. As each of these individual entities absorbs and then processes the sun's radiated light energy in its own unique fashion, who could possibly say which of their experiences is the most authentic or "real"? What organism could dare claim that it sees the "real" sunrise? Which organism could say that its experience of the rising sun's red color is any more genuine? Red is a man-made construct that bears no relation to the actual physical universe, nor to the reality of other species. Though we may interpret the sunrise as being red, the sunrise "in itself" is not. This is just the manner in which the

mean of our species experiences a particular wavelength (six hundred nanometers) of light as it falls upon our retinas. In essence, we must recognize that we can only conceive of reality inasmuch as our biologies enable us to do so.

As each of us perceives the world from our own unique and therefore relative perspective, all knowledge must consequently be relative as well. In the words of Immanuel Kant, it is impossible to know “things in themselves” but rather only “things as we perceive them.” Consequently, it’s impossible for us to ever know anything with absolute certainty. Instead, we can only know things with relative certainty. But if this is true, one might justifiably ask: Why seek to know anything at all?

The answer to this is simple. Regardless of how relative our perspectives might be, we nevertheless possess the capacity to perceive a close or common enough approximation of things as to provide us with practical information regarding our world. This is why, for instance, if we were to take a roomful of people all looking at the same rock and we were to ask them what they saw, though each individual might experience the rock from his own unique perspective, each will generally agree that the object at hand is indeed a rock. If, among this same roomful of people, some claimed to see a shoe, some a banana, others a dog, we’d be in for some trouble. Fortunately for our species, however, this is not the case. Our sense organs are consistent enough that if we were to place an object such as a rock in front of a roomful of people, the majority will generally agree that it is a rock they are perceiving. Though we may never know a “thing in itself”—though we may never possess absolute knowledge of anything, our perceptual organs and internal processing mechanisms offer us a consistent enough account of the world to provide us with practical and reliable data. As a matter of fact, our perceptual organs have yielded so much practical and reliable data that we have been able to develop entire scientific disciplines from them. These disciplines have helped us to cultivate such practical and reliable technologies as the electric light, microwave ovens, nuclear energy, artificial organs, spaceships, antibiotics, electron microscopes, and computers, to name a small few.

So what is science's secret? How does it allow us to take our perceptions of things and transform them into an electric light or microwave oven? What application of knowledge is this that it has furnished us with such a vast wealth of life-enriching technologies? Simply speaking, how does science work?

Science relies on a very strict process known as the scientific method, a process whose principles were originally outlined by two philosophical contemporaries, namely Sir Francis Bacon (1561–1626) in his book *Novum Organum* and Rene Descartes (1596–1650) in his book *Discourse on the Method of Properly Conducting One's Reason and of Seeking the Truth in the Sciences*. Descartes suggested that in order to procure what he referred to as "clear and distinct" knowledge of things, one had to apply a strict set of guidelines to the manner in which he conducts his observations. Descartes referred to these guidelines as the scientific method. And what is this scientific method? Without providing a detailed explanation of Descartes' own principles, I will attempt to offer a more conceptual interpretation.

The scientific process operates in two phases: the empirical and the statistical. In the first phase, a scientist seeks patterns in the universe based on empirical observation—data received through the physical senses. For example, based on information acquired through his sense organ, his eyes, an early human happens to notice the sun rising from the east. The next morning, he notices the same thing occur. After several more observations, this nascent scientist begins to recognize a pattern. Based on his initial observations, he may surmise that perhaps the sun, as a rule, rises from the east. Since he has yet to confirm this "theory," his assertions are, for the time being, purely hypothetical. After all, a few simple observations are hardly any basis for placing unconditional faith in something.

It is now, in the second phase of the scientific method, that our scientist must perform a series of tests that will either verify or refute his original hypothesis. He might, for instance, decide to observe the sunrise for several more years, allowing each morning's observation to represent one more piece of evidence to confirm his theory. This is where the statistical phase enters the picture.

After our scientist feels confident that he has obtained sufficient statistical evidence to support his theory, he will disclose his findings to those around him, more specifically to the rest of the world's scientific community. It is now the duty of the scientific community to review his hypothesis by performing their own series of tests. This is necessary as the conclusions of one sole observer should never be accepted as adequate proof of anything. What if, for instance, our original scientist was making up the results just to get attention or perhaps he was simply too ignorant to know the difference between east and west.

It is at this point that other scientists will perform their own tests meant to either confirm or invalidate the original scientist's findings. Perhaps some of these scientists will duplicate the original scientist's experiments to see if they get the same results. Others, meanwhile, may devise whole new means of testing the theory. One, for instance, may wish to see whether or not he will obtain the same data from some other part of the globe. Perhaps in Africa or Asia the sun rises from the west.

As this process continues, one by one, our ever-skeptical scientific community will conduct as many tests as they can come up with before assenting to a theory. Only after a sufficient amount of supportive statistical data is obtained might the scientific community be willing to give credence to a theory—in this case, that the sun does indeed rise from the east.

Keep in mind, statistics still do not reflect certainties. Though the sun may have consistently risen in the east for as long as humankind has recorded this phenomenon, the supposition that the sun rises from the east is still just a theory. Just because the sun has risen in the east every day up until the present doesn't necessarily mean that it will do the same tomorrow. How, for instance, can we know with absolute certainty that the sun won't explode this evening for reasons beyond our knowledge? We don't. What we do know is that the sun has been rising in the east for so long and with such consistency that it most probably will do the same thing tomorrow—not certainly, just most probably. Even Einstein recognized that

though no one single experiment can ever prove a theory correct, all it takes is one to prove a theory incorrect. (For example, should the sun rise from the west, just once, there goes the entire theory.) Scientists do not therefore claim to be able to "see" into the future but only to predict within a certain degree of accuracy, based on probabilities, what may or may not occur.

But if science is based on mere probabilities (as opposed to certainties), why should we place so much faith in it? Why practice science with such conviction? The reason is that although the whole of science may be based on probabilities, it still represents the most accurate and reliable source of information any method, system, or paradigm has offered us thus far. Though our local meteorologist may sometimes provide us with an inaccurate forecast, how often do we choose to turn to our local priest, shaman, or psychic for tomorrow's weather? Though scientific method may be based on mere probabilities and therefore imperfect, it has proven itself, time and time again, to represent the most reliable and accurate source of information we have.

Once the scientist has probable cause to give credence to a theory, once he has faith that the pattern he has recognized occurs with a sufficient degree of consistency, he will then use this newfound information to elicit even more. One deduced "fact" can be used to deduce the next. Once our scientist accepts that the sun rises from the east, he is now armed with yet one more fact with which to decipher his universe, one more piece of the puzzle with which to try to grasp the greater picture. In his search for answers, the scientist will utilize his findings to uncover even more elusive patterns. In this way, science is constantly building upon itself.

One of the fundamental principles of science is that every action has an effect. This, in turn, suggests that every effect has its cause. Once a theory has been verified, a scientist might want to know why such a thing occurred. Once he accepts, for instance, that the sun rises in the east, he may want to dig deeper into the mystery of this phenomenon by asking: Why does it rise this way? Is it because a sun god is pulling it up from the east by a magical string or maybe



because the Earth revolves around the fixed Sun from that direction? Presuming that the sun rises from the east, the scientist may now search for yet an even deeper understanding of this phenomenon.

With the assistance of various tools that can be used to enhance our empirical powers of observation (e.g., a telescope with which to augment our vision), a scientist can dig perpetually deeper into the mysteries of the physical universe, acquiring information one piece at a time until he has acquired as much knowledge as is humanly possible.

Now there are those who refute the scientific method, those who deny its capacity to reliably interpret our world, those who consider it a sham, an artifice, a means of deceit. They refer to science as the Devil's plaything, a conspiracy developed to contradict their own religious beliefs. Take, for instance, those who support the Judeo-Christian interpretation of the Earth's origins, otherwise known as creationism. Such "creationists" reject man's evolution from the primates. They reject the idea that the Earth (as well as life) is a few billion years old. Regardless of how much their beliefs (e.g., that the world was created in six days approximately six thousand years ago) may contradict libraries full of carefully documented scientific data (data acquired through the exact same methodology that gave us the electric light and automobile), they insist that their viewpoint is correct. How is it that such people can refute such well established data and yet, in the same breath, turn on their electric fans when they are overheated or take antibiotics when they are ill? How can people spurn the sciences one day and then gladly partake of their fruits the next? How do they justify their acceptance of such medical technologies as gene therapy or cloning while, at the same time, continuing to deny the same evolutionary principles from which these advances are founded? There is no compromise. One must either accept the doctrines of science—of reason—or one must reject its principles altogether. We either trust in the scientific method or we do not.

One problem many religions have with science is that it represents a source of constant contradiction. For example, in the old days, if the land was dry, men prayed for rain. Since they didn't

understand the underlying physical cause of this phenomenon, they believed that the rain's fall was determined by the impulses of those who lived beyond the clouds, by the wills of the gods. How else were humans to explain such a thing? They couldn't. It took humankind thousands of years of scientific discovery and research before we understood the nature of the evaporation and condensation of water molecules—that is, of rain. But we needed some sort of explanation. What else were we to do? Accept that it rained for absolutely no reason whatsoever? This would hardly be possible, as it is human nature to pursue the underlying cause and nature of things.

Today we know better than to believe that rain is produced by the whims of gods. Today, we know that rain occurs because of a series of physical causes and effects. In this way, science has emasculated the old gods. It has stripped them of their powers and has instead allotted them to a source that is wholly neutral, one that is indifferent to the affairs of men, one scientists refer to as "the forces of nature."

Now I can certainly understand why humans would desire to believe in a god, in a force that cares about us, that treats us as its favored creature. Believing in a god provides us with a sense of purpose. It bestows us with immortal life. But should we believe in such things if it's at the expense of everything that corresponds with reason?

And so, at the age of twenty-one, I decided to place my faith in the physical sciences. And why not? At this point, I had every reason to believe in the logic of the physical universe and none whatsoever to believe in any spiritual reality. Until proven otherwise, I would pursue all things, including the nature of God's existence, from a strictly physical—that is, a scientific—perspective.

Only how was one to use science to find God? Into what constellation does one point his telescope? What slide is one to place under the microscope?

...And so, my quest continued.