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### **God, Materialism, and Neurobiology**

The question of the relation between religion and neurobiology has come into the public forum recently, largely because of a book with the intriguing title, *Why God Won't Go Away.*<sup>1</sup> Andrew Newberg explains the research in which he and his late colleague, Eugene d'Aquili, showed that religious experience is rooted in the brain. Regardless of culture, human beings are biologically driven toward the kind of experience that religious literature calls "mysticism." The mystical experience gives rise to religions with their mythology and ritual which are also explainable by neurobiology. Materialists interpret the facts to mean that religious experience is reducible to neurobiology. According to the materialist interpretation, God is "nothing but" a series of electrical blips inside the human skull. Religious believers interpret the same research to mean that the brain is exquisitely structured to lead human beings to an experience of the highest reality. Newberg and d'Aquili do not resolve the issue nor do they claim to do so. In fact they repeat several times that the question is open as to whether the experience of God has a referent in reality. They point out that the materialist explanation is possible, a conclusion that they describe as commonplace among the neurological researchers. But they emphasize the more astonishing hypothesis that in light of the scientific evidence the reality of God is very plausible. Although readers will draw opposing conclusions from

the research, the authors bring the debate to a higher level of factual information and conceptual clarity.

This paper is not a review of Newberg and d'Aquili's book although it rests very heavily on it. I will proceed by giving a brief description of the two opposing positions, the materialist and the metaphysical. This will be followed by an argument for a reality that transcends the physical world. The paper will conclude with a pragmatic analysis of the two positions.

The term materialism is often used pejoratively to refer to an attitude of wanting a lot of "stuff." The philosophical meaning of materialism is the belief that only the physical world is real and all seemingly non-physical phenomena can be explained in terms of physical things. For example, thought can be explained as a function of the brain with its chemico-electrical processes. This belief is also called reductionism because it reduces the so-called higher phenomena to simpler, more elemental things. Religion as well as the art, literature and culture that are studied by the humanities are reduced to psychology, which is reduced to evolutionary biology. Biology in turn is reduced to chemistry and physics.<sup>2</sup>

The opposite view may be described as "metaphysical." We could use the term "non-materialistic" but then we would be defining one opposing term only as the negation of the other. The term "spiritual" is a possible candidate for the opposite of material, but "spiritual" has several meanings and it is difficult to define it without falling back on "non-material." The term metaphysical is preferred although it too has several meanings; in bookstores under the banner of "Metaphysics" you are likely to find some rather spooky sounding titles. However, the term "metaphysical" here will be used in its literal sense as it has been used by philosophers since Aristotle. It means "beyond physics." The metaphysical transcends all that can be known through the common sense

experience and empirical physical science. To define the transcendent as being “beyond the physical” makes the physical world the baseline for the definition. Knowledge of the physical world is one that we all share. Few people deny the reality of common sense and of physical science. The parting of the ways comes when anyone claims that there is “something more.”

The contrast between the materialist and the metaphysical views is clearly demonstrated in a popular book by scientist and materialist Francis Crick. In *The Astonishing Hypothesis*, he argues that “ ‘You,’ your joys and your sorrows, your memories and ambitions, your sense of personal identity and free will are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules” (Crick p 3). The implications of his hypothesis are that there is no possibility of free will, God, or a survival after death.

The opposition between metaphysics and materialism pivots around the interpretation of experiences referred to as “mysticism.” Like many of the terms in this debate, the word mysticism is used in several different ways and is often misunderstood. For example, mysticism is often teamed up with magic and associated with a woman wearing a handkerchief around her head and reading palms or tea leaves. However, classical studies such as William James’s *Varieties of Religious Experience* and Evelyn Underhill’s *Mysticism* describe the experience of trained persons in deep meditation. Those who report these experiences are often highly intelligent, healthy, and competent persons. James describes mystical states as they appear to those who experience them: “They are states of insight into depths of truth unfathomed by the discursive intellect. They are illuminations, revelations, full of significance and importance, all inarticulate though they remain; and as a rule they carry with them a curious sense of authority for after-time” (*Varieties*, p 293). Underhill defines mysticism as follows: “I understand it

to be the expression of the innate tendency of the human spirit towards complete harmony with the transcendental order; whatever the theological formula under which that order is understood” (Underhill, xiv). James and Underhill cited sages and saints as examples of such experience. More recently, Newberg and D’Aquili correlated the reports of Buddhist masters and Franciscan nuns with brain imaging while they were in deep meditation. Through their research they discovered what happens in the brain during meditation that leads to mystical experience.

The human brain has an area that is responsible for our awareness of the boundaries of our body and our orientation in space, which Newberg and d’Aquili call the “orientation association area” or OAA. “The primary job of the OAA is to orient the individual in physical space—it keeps track of which end is up, helps judge angles and distances, and allows us to negotiate safely the dangerous physical landscape around us” (Newberg and d’Aquili p. 4 –5). Such a function enables us to be aware of our relationship to food and to enemies and therefore is crucial to our survival. This part of the brain is fed information from the senses. During meditation, the mind turns away from the senses and from attention to the world of ordinary consciousness. When this happens, the orientation part of the brain no longer receives the input it needs. In searching for boundaries it finds none and so thinks of the self as infinite. Since it cannot find the distinction between the organism and reality, and it thinks reality is infinite, it feels like it is either a part of infinite reality, as in the case of the Buddhist, or intimately united with infinite reality, as in the case of the Catholic nuns.

These experiences combine extreme quiescence with extreme arousal, a combination not found in ordinary experience. The quiescence is due to the fact that the meditator has systematically detached him or herself from the ordinary stimuli of arousal. But the experience of the infinite is strange and so causes arousal that combines fear with

a sense of joy and intimacy. As most readers have probably guessed, the researchers draw a connection between mystical and sexual experience. In fact most of the tradition of mysticism has also drawn the connection.

The materialist reaction to this research is likely to be, “See; I told you.” The whole of religious experience and the religions and metaphysical ideas that flow from it are nothing but a misreading on the part of the brain. Materialists can interpret the function of the brain as an evolutionary survival mechanism that builds sexual intimacy as one of the most significant experiences. The intensity of the sexual experience provides a strong bond between a man and woman and thereby helps assure the protection of the offspring. When humans stumbled on a similar experience in meditation, probably because of some repeated activity, they found a new source of joy and meaning and translated their illusion into ritual and myth.

Thus, a materialist explanation of spiritual experience is possible; the question is whether it is compelling. Those who hold the materialist view find it more rational than other explanations because it speaks a language that they can understand, namely, chemistry and physics. Further it does not posit a reality or a knowledge that is beyond their ken and thereby it allows them to be in intellectual control of their experience. The passion for the kind of rationality that allows us to stay in control was expressed by Freud who warned Jung of the danger of giving up the sexual theory. Freud’s theory explained the conscious and unconscious mind through a mechanistic process that Freud could deal with. Jung reports that Freud’s emotional plea to him was, “...promise me never to abandon the sexual theory... You see, we must make a dogma of it, an unshakeable bulwark... against the black tide of mud of occultism.” Jung expressed alarm at the terms dogma and bulwark and understood the term “occultism” to include everything that religion and philosophy had learned about the psyche ( Jung p.150). So while materialism

may serve as a comfort to some people the way that religion does to others, the direction of this paper will be to examine an alternative to the materialist theory asking whether such a theory is plausible and if so whether it would be a threat to our rationality.

### **What is real?**

The question of the reality of God in the context of neurobiological research is not limited to any one faith tradition or the theology that flows from it. The question at hand is whether the brain's activity that occurs during the meditation known as mystical experience is the producer of illusion or if it allows the meditator to get in touch with a reality that is ordinarily missed in human experience. Is there something real that transcends the material world as it is known by common sense and by science? Is there something that is more real than the material world on which the meaning and perhaps the very existence of the material world depends? Christians, Jews, Muslims, and some Hindus would call such a being by the name of God.

Establishing the reality of such an ultimate being is extremely difficult, but even establishing the reality of *anything* is problematic. Common sense or naïve realism is the belief that reality is simply there and we just have to open our eyes to see it. This is not the place to examine the epistemological question of how the world is structured by an interaction between the mind and reality, but I will simply stipulate an assumption that I think most of the readers of this article will accept as a true. *Something exists independently of our mind*. Our problem is to learn what reality is like. We develop a set of ideas which enable us to deal with reality. As William James put it, there are a lot of useful and harmful things in reality and it is important that we know the difference. Ideas that agree with reality are true, those that disagree are false ( *Pragmatism* p. 87-89). Early in life we learn to be careful on staircases and to avoid touching hot light bulbs. Our

parents were right and the dangers are real regardless of what we may have thought. Some aspects of reality take longer to learn. The smoker might ask, “Will cigarettes *really* destroy my lungs?” There are other problems that the whole human race has struggled with: “Do CFCs *really* deplete stratospheric ozone?” “Does burning fossil fuel *really* affect global temperature?” In all of these cases there is a true answer. It might be more nuanced than a simple yes or no, but if something is really happening, then it does not depend on what we think, what our political views are, or whether science can prove it. What is real, is real, and our ideas are true if and only if they conform to what is real.

There are some questions that we can reasonably expect to answer in our own lifetime and others that we hope the collective effort of science will answer in the lifetime of our children or grandchildren. The question of the reality of a Higher Being is not one of these questions. Science progresses by dealing with realities that can be publicly observed and measured. But when asked whether there is any reality beyond the scope of science, scientists must say, “As scientists we do not know and cannot know.” But as plain citizens they can each say, “I believe so,” or “I believe not” or “I choose not to take a position.”

In the context of neurobiological research, what would it mean to say that God is real? What is the mind experiencing when there is no sensory information coming to the part of the brain that marks out the boundaries of the person in relation to other things? Instead of concluding that the boundaries of the self are real and the sense of infinity is an illusion, can we not rather conclude that the infinity is real and the boundaries are a useful but limiting construct?

### **An inductive argument for the reality of God**

The facts of mystical experience do not force either the metaphysical or the materialist position. While the term “faith” is usually associated with a religious position,

materialists can be as steadfast in their faith as anyone else can. While some people will be believers or atheists on grounds that have nothing to do with rational argument, some others are interested in knowing which position is the most reasonable. While a definite answer is not in the works, the scientific method can be employed to examine the evidence. In this section I will present an inductive argument that the metaphysical position is more coherent, more compatible with the facts of experience, and hence more cogent than the materialist position. We can use the scientific method of testing competing hypotheses by first drawing out the implications of each one. What would we expect if the materialist hypothesis were true and what would we expect if the metaphysical hypothesis were true?

A rational examination of the question of the reality of mystical experience might require a thought experiment. Suppose there is a team of investigators who are unaware of the long traditions of religion and materialism and who have no preconceived opinion on what mystical experience means. Some of them are materialists and some believe in a transcendent reality. In doing research they learn that prolonged concentration on a particular object, such as a repeated sound, causes the person's brain to stop sending signals to its orientation area. This would cause the concentrating person to lose awareness of space and of the boundaries of the organism. What would the researchers expect the experience to be like? And what would be its effects on the person who had such an experience?

I suggest that materialists would expect a sense of disorientation, vertigo, and annihilation. If the boundaries of a thing make it what it is, when these are lost, there is a sense of nothingness. Most people would avoid these experiences the way a person who is nauseated by amusement park rides will avoid the rides. But some people find any change of consciousness titillating. Some people get drunk over and over; people pay

money to watch movies filled with terror and horror. Such people might seek out experiences that create an illusion of no boundaries. But they would probably do so privately and if they became obsessed with meditation they would constitute a social problem. There would probably be a Meditators Anonymous to help them recover.

But what would investigators who believed in a transcendent reality expect? If reality were infinite being in the sense of infinite consciousness, infinite love and infinite joy,<sup>3</sup> then the expectation would be quite different from what it would be for the materialist. The area that causes us to identify ourselves with the limits of our body would be the illusion creating function. The awareness of bodily boundaries would be useful for biological survival, but the belief that consciousness so demarcated is the whole self would be the source of what Hindus call Maya and what Plato called the cave. For our ancestors negotiating their way through jungle and forest, and for us crossing streets and driving in traffic, the tunnel vision that Nicholas Rescher called “a useful inheritance”<sup>4</sup> would be necessary for survival. But if we can find a safe place in a chapel or meditation room and turn off the flow of information to the orientation center, then we would have a clear vision of reality. We would perceive it correctly as being infinitely more real than our everyday world and our ordinary self. We would see it as good and want to dwell in its presence.

In defining a more rational belief, I cited coherence and compatibility with fact as two criteria. William James proposed a third and most important pragmatic criterion. What behavior does a belief lead to? The behavior of those who experienced a fuller reality would be different from the rest of us in a positive way. They would be more enthusiastic and happier. Because they recognized the limitation of the egoist self, they would be less concerned about bodily pleasure and pain, and less tempted to be greedy for money or power. In fact they would be a lot like Plato’s definition of the philosopher

in the *Phaedo* (in Hamilton/Cairns, p. 50). Because they would see their own individual selves and those of other people in the context of a much larger self, they would be gentle and loving in their relations with other people. We would expect them to have insight by which they could direct the morality of the rest of us.

This is in fact the effect that mysticism has on the great practitioners in Christianity, Judaism, Hinduism, Buddhism and all of the world religions. The fact that the experience and behavior of the meditator is what we would expect if the metaphysical hypothesis were true is reason to believe that it probably is true.

The materialist might be bristling at this point and argue that my examples stacked the deck. When I think of a materialist counter argument, I am reminded of a cartoon that appeared recently in the *New Yorker*. A couple was watching television in horror as they heard about religious wars in Israel and Palestine, in India, the former Yugoslavia, Iraq, Northern Ireland, and Africa. The horror on their faces becomes more pronounced as they listen to President Bush say that the only hope for world peace can be found in religion. Opponents of religion often point to intolerance, oppression, and religious wars as the fruit of religion. This explains the passion with which some atheists hold their belief, and such arguments can be backed up easily with historical and current facts. Do not the wars that flow out of religion lead us to conclude that religious experience is more dangerous than any drug?

While the lives of holy persons in all traditions might give the impression that they had tapped into a higher reality, the wars, persecutions, and oppression that have been associated with religion indicate that it is based on a very malignant illusion. The answer to the paradox may be found in a paraphrase of Alexander Pope's comment about learning. Perhaps a little religion is a dangerous thing. This solution is precisely the one that Newberg offers.

For those who have a mystical experience that is incomplete, the experience with the highest being is one of closeness but not identity. They may interpret the experience in a literal sense and in a theistic context they are convinced that God has spoken to them. In their estimation their insight is the one and only expression of absolute truth. Any one who rejects their interpretation is simply wrong. Not only are they wrong, but they are attacking the one source of goodness. Intolerance can result from mistaking a particular expression of the Ultimate Reality for the reality itself. As in the case of “a little learning,

“When shallow draughts inebriate the brain,  
Drinking largely sobers us again.”

So while a little mysticism may lead to intolerance, a deeper experience can get us beyond intolerance. As Newberg puts it,

The Presumption of “exclusive” truth, upon which religious intolerance is based, may arise out of incomplete states of neurological transcendence. Ironically, when the process of transcendence is taken to the logical, and neurobiological, extreme, the mind is confronted with a state of absolute, uncompromising unity, in which all conflict, all contradictions all competing variations of the Truth, disappear into harmonic, monolithic oneness (Newberg and d’Aquili p 164).

All religions are rooted in the experience of the same transcendent unity. If the unity is all encompassing, there cannot be more than one such unity. In theological terms, there is only one God and all religions are ways of interpreting God to humans.

I will conclude this paper with another thought experiment. Imagine a race of people among whom almost everyone is blind. There are a few sighted people who report visual experience to their compatriots. Some of the people admire the sighted ones and develop systems of belief around the report of sight. Others think they are shams.

Suppose the blind society found a way to study neurobiology. They found that when

people report “seeing” there is electrical activity in the optic nerve. The society has no idea what the optic nerve is for. The skeptics in the society would say that the reports of seeing are nothing but a disturbance of the optic nerve. The believers would interpret the seeing to be a result of perceiving something real, but not easily available. If the seeing people could find their way around better than the others, this would be reason to think that they are perceiving something real.

If the experience of the mystics is a perception of something real, we would expect that in every culture, religion would be the vanguard of moral progress. The moral and cultural leadership of religion is in fact the case. The wisdom of the human race that enables us to live together and make life good is found in religions. Materialists point to intolerance and war among religions as if religion had a monopoly on these things. Every human activity is susceptible to exploitation and perversion. Perhaps because religion promises so much, it is more susceptible than most practices.

In conclusion, we can follow the lead of William James and look at the pragmatic consequences of the metaphysical interpretation of the neurobiological research. If the view presented here is true, what difference does it make? Although it might make some scientists uncomfortable, it poses no problem for science itself. In fact it might help explain the malleability of nature that makes science possible. But apart from science, it explains some human experiences that a reductionist view would not: free will, community, and the possibility for real growth. Free will is possible because even though my individual consciousness is limited by my physiology, consciousness transcends my ego and therefore my individual physiology. It also makes the belief in immortality rational. For although my brain will die, consciousness is larger than my brain. Community is possible because there is a level at which my neighbor and I already share

a consciousness. Spiritual growth means overcoming the ignorance by which I remain unaware of that unity.

If a person could turn these ideas into real beliefs in the pragmatic sense of habits of action, that person's lifestyle would resemble the description of saintliness in *Varieties of Religious Experience*. As James expressed it: "The highest flights of charity, devotion, trust, patience, bravery to which the wings of human nature have spread themselves have been flown for religious ideals" (*Varieties*, p 207). By way of understatement, an examination of the neurobiology of mystical experience can lead us to believe that the spiritual masters are on to something.

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<sup>1</sup> Andrew Newberg, Eugene D'Aquili, and Vince Rause. *Why God Won't Go Away: Brain Science and the Biology of Belief*. New York: Ballantine Books, 2002.

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<sup>2</sup> A readable and authoritative account of materialism as it applies to human biological research is found in *The Astonishing Hypothesis* by Francis Crick.

<sup>3</sup> This is based on Huston Smith's description of Hinduism.

<sup>4</sup> Nicholas Rescher *A Useful Inheritance*.