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THE ORIGIN OF CONSCIOUSNESS [PART I]

Bert Thompson, Ph.D. and Brad Harrub, Ph.D.

[EDITOR'S NOTE: In the January and February issues of *Reason & Revelation*, we ran the first in a multi-part series of articles dealing with the topics of the origin of the brain and mind, and the origin of human consciousness. Those two installments examined the insuperable problem that every materialistic theory of origins faces when attempting to explain—by purely natural causes—how something as complex as the brain and mind came to be. The April and May issues are devoted to the even more difficult problem of the origin of consciousness. The late evolutionist of Harvard, Stephen Jay Gould, candidly admitted that "consciousness, vouchsafed only to our species in the history of life on earth, **is the most god-awfully potent evolutionary invention ever developed**" (1997, p. ix).

But **how** did it develop? The answer to that question has eluded, and continues to elude, materialistic researchers in every discipline—from science to philosophy. Valiant (and repeated!) attempts to explain consciousness have been made, to be sure. But all have fallen far short of the mark. Tufts University philosopher Daniel Dennett was even so bold as to author a book with the self-congratulatory title, *Consciousness Explained*—which promptly was dubbed by his fellow materialists as ***Consciousness Ignored***, because it failed so miserably in its quest.

Rarely is a topic of such profound significance that I authorize a special double issue of *Reason & Revelation* to deal with it. But on occasion (such as in the May and June 2003 issues dealing with the Big Bang), the subject matter is simply so critically important, and so urgent in its implications, that I feel a double issue is justified. This is one such occasion. As Dr. Harrub and I observed in our two-part series on the origin of gender and reproduction (see *Reason & Revelation*, October and November 2002), evolutionists refer to the origin of sex as "the queen of problems." If that is the case, then surely the origin of consciousness qualifies as "the king of problems." I invite you to join us on what I believe you will find is an absolutely fascinating journey into the origin of the unique aspect of humanity that makes it possible for you to understand what you are reading—consciousness.]

When speaking of consciousness (also referred to in the literature as "self-awareness"), evolutionists freely admit that, from their vantage point at least, "consciousness is one's most precious possession" (Elbert, 2000, p. 231). David MacKay of the University of Keele in England wrote: "[Consciousness is] for us, the most important aspect of all" (1965, p. 498). Renowned paleoanthropologist Richard Leakey stated the issue like this: "The sense of self-awareness we each experience is so brilliant it illuminates everything we think and do..." (1994, p. 139).

In their book, *Evolution*, the late geneticist Theodosius Dobzhansky and his co-authors wrote: "In point of fact, **self-awareness is the most immediate and incontrovertible of all realities.** Without doubt, the human mind sets our species apart from nonhuman animals" (Dobzhansky, et al., 1977, p. 453, emp. added). Ervin Laszlo, in his volume, *Evolution: The Grand Synthesis*, commented:

> **The phenomenon of mind is perhaps the most remarkable of all the phenomena of the lived and experienced world.** Its explanation belongs to a grand tradition of philosophy—to the perennial "great questions" that each generation of thinkers answers anew...or despairs of answering at all (1987, p. 116, ellipsis in orig., emp. added).

The late Robert Wesson, who was a much-respected Hoover Institution Senior Research Fellow, observed in his book, *Beyond Natural Selection:*

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> Life has a dual nature: its material basis and the essence of functionality and responsiveness that distinguishes living things and flourishes at higher levels of evolution. **The material and the mental are both real**, just as are causation and will. The mind derives richness from these two sides, like feeling and bodily function, love and sex, the spiritual and the carnal, the joy of creation and the satisfaction of bodily wants (1997, p. 278, emp. added).

Or, as philosopher Michael Ruse remarked: "**The important thing from our perspective is that consciousness is a real thing**. We are sentient beings" (2001b, p. 200, emp. added). Sir Cyril Hinshelwood, professor of chemistry at the Imperial College in London, commented: "I almost hesitate to say this in a scientific gathering; but one does just wonder **what would be the point or purpose of anything at all if there were not consciousness anywhere?**" (1965, p. 500, emp. added).

And creationists certainly agree. In his work, *Understanding the Present: Science and the Soul of Modern Man*, theist Bryan Appleyard observed:

> Light, gravity, even the whole biological realm are related to us only in the most superficial way: we reflect light, if dropped we fall and we have a body system roughly comparable to a large number of animals. **All of which is trivial compared with the one attribute we have that is denied to the rest of nature—consciousness** (1992, pp. 193-194, emp. added).

Yes, consciousness is a "real thing." But why is it an "important thing"? Stephen Jay Gould concluded:

> Consciousness, vouchsafed only to our species in the history of life on earth, is the most god-awfully potent evolutionary invention ever developed. Although accidental and unpredictable, it has given *Homo sapiens* unprecedented power both over the history of our own species and the life of the entire contemporary biosphere (1997, p. ix).

With consciousness has come the ability to control—well—almost everything! But with that "unprecedented power" has come unprecedented responsibility because, as even evolutionists are wont to admit, actions have consequences. Well-known evolutionist Donald Griffin, in the 2001 revised edition of his classic text, *Animal Minds: Beyond Cognition to Consciousness*, admitted as much when he wrote:

> It is self-evident that we are aware of at least some of what goes on around us and that we think about our situation and about the probable results of various actions that we might take. **This sort of conscious subjective mental experience is significant and useful because it often helps us select appropriate behavior** (p. ix, emp. added).

"Selecting appropriate behavior" (or, as the case may be, **not** selecting appropriate behavior) becomes a key point in this discussion. As evolutionists John Eccles and Daniel Robinson correctly observed in *The Wonder of Being Human: Our Brain and Our Mind*: "Whether one takes human beings to be 'children of God,' 'tools of production,' 'matter in motion,' or 'a species of primate' has consequences" (1984, p. 1). Yes, as we will show, it certainly does.

THE "MYSTERY" OF HUMAN CONSCIOUSNESS

Consciousness is undeniably real. And it does have consequences—something that practically every rational human freely acknowledges. But **admitting** all of that turns out to be the easy part. The difficulty arises in explaining **why**—why consciousness exists; why it is real; why it works the way it does; why it "has consequences." When it comes to explaining the origin of consciousness, evolutionists concede (to use their exact words): "Clearly, we are in deep trouble" (Eccles and Robinson, 1984, p. 17). Just how "deep" that "trouble" really is, appears to be one of the most widely known—yet best-kept—secrets in science. In a chapter ("The Human Brain and the Human Person") he authored for the book, *Mind and Brain: The Many-faceted Problems*, Eccles wrote:

> The emergence and development of self-consciousness...is an utterly mysterious process.... The coming-to-be of self-consciousness is a mystery that concerns each person with its conscious and unique selfhood (1982, pp. 85,97).

Or, as British physicist John Polkinghorne put it: "The human psyche has revealed its shadowy and elusive depths" (1986, p. 5).

Consider the following admissions from those within the evolutionary community, and as you do, notice the descriptive terms ("problem," "mystery," "puzzle," "riddle," "challenge," etc.) that generally are employed in any discussion of consciousness.

> **Consciousness is the highest manifestation of life, but as to its origin, destiny, and the nature of its connection with the physical body and brain—these are as yet unsolved metaphysical questions**, the answer to which can only be found by continued research in the direction of higher physical and psychical science (Carrington, 1923, p. 54, emp. added).

> **Nobody has the slightest idea how anything material could be conscious**. Nobody even knows what it would be like to have the slightest idea about how anything material could be conscious (Fodor, 1992, p. 5, emp. added).

> We need to close the gap between the physical and subjective realms of this topic before we can hope to reach an

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understanding of consciousness. **Until then it remains**, according to *Scientific American*, "**biology's most profound riddle**" (Johanson and Edgar, 1996, p. 107, emp. added).

The problem of consciousness tends to embarrass biologists. Taking it to be an aspect of living things, they feel they should know about it and be able to tell physicists about it, whereas they have nothing relevant to say (Wald, 1994, p. 129, emp. added).

We believe that **the emergence of consciousness is a skeleton in the closet of orthodox evolutionism**.... It remains just as enigmatic as it is to an orthodox evolutionist as long as it is regarded as an exclusively natural process in an exclusively materialist world (Eccles and Robinson, 1984, pp. 17,18, emp. added).

What the connection, or the relationship, is between what goes on mentally in the mind and what goes on physically in the brain, nobody knows. Perhaps we shall never know. **The so-called mind/brain problem has proved so elusive, many have come to regard it as a mystery of ultimate significance**.... Unlike less-complicated physical structures, **the brain is accompanied by consciousness. As we said earlier, we do not know why this should be**. For the time being at least, we must simply accept it as a brute fact (Stannard, 2000, pp. 41-42,44, emp. added).

The emergence of full consciousness ...is indeed one of the greatest of miracles (Popper and Eccles, 1977, p. 129, emp. added).

CONSCIOUSNESS DEFINED

The past three decades have witnessed a serious and noticeable increase in interest in the subject of consciousness, accompanied by a surge of publications, new scientific and/or philosophical journals, and scientific meetings (for examples within the last few years see: Greenfield, 2002; Tolson, 2002; Lemonick, 2003a, 2003b; Pinker, 2003).

One would think that since **so much** has been written on the topic of consciousness, surely the definition of this oft'-discussed issue would be a straightforward, simple matter. Think again! [One dictionary on psychology had the following entry under "consciousness": "Consciousness is a fascinating but elusive phenomenon; it is impossible to specify what it is, what it does or why it evolved. Nothing worth reading has been written about it" (Sutherland, 1989).] Scientists and philosophers cannot even agree on the definition of the term, much less on the origin of that which they are attempting to define.

Our English word "consciousness" has its roots in the Latin *conscio*, formed by the coalescence of *cum* (meaning "with") and *scio* (meaning "know"). In its original Latin sense, to be conscious of something was to share knowledge of it, with someone else, or with oneself. As English scholar C.S. Lewis noted in his *Studies in Words*:

> A "weakened" sense of *conscientia* coexisted in Latin with the stronger sense, which implies shared knowledge: in this weak sense *conscientia* was, simply, knowledge. All three senses (knowledge shared with another, knowledge shared with oneself and, simply, knowledge) entered the English language with "conscience," the first equivalent of *conscientia*. The words "conscious" and "consciousness" first appear early in the 17th century, rapidly followed by "self-conscious" and "self-consciousness" (1960).

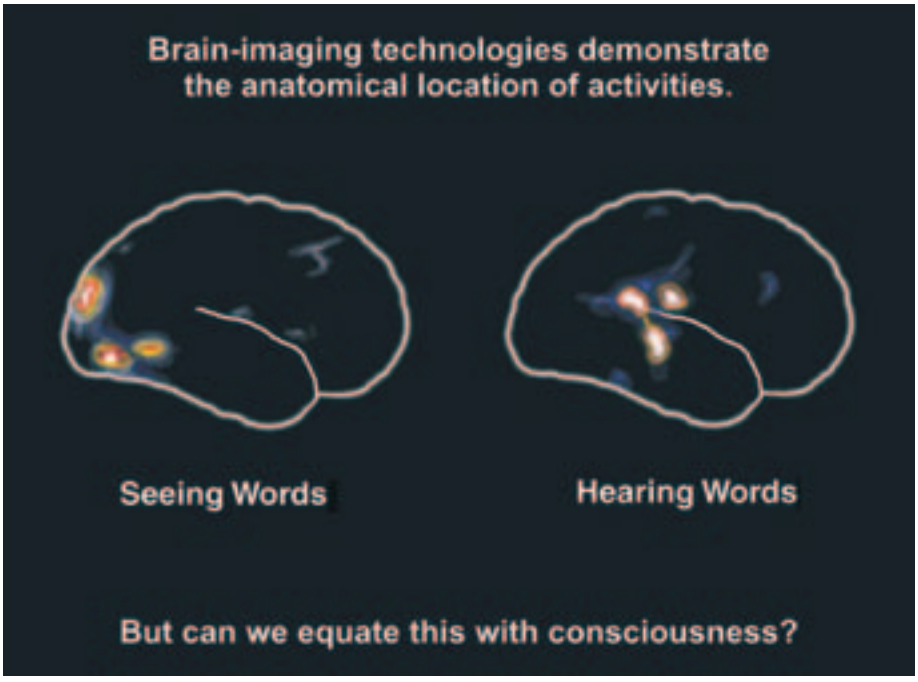
Consciousness, however, has become a rather ambiguous term in its everyday usage. It can refer to: (1) a waking state; (2) experience; and (3) the possession of any mental state. It may be helpful to the reader to provide an example of each of these three usages: (1) the injured worker lapsed into unconsciousness; (2) the criminal became conscious of a terrible sense of dread at the thought of being apprehended; and (3) I am conscious of the fact that sometimes I get on your nerves. Anthony O'Hear suggested:

> In being conscious of myself as myself, I see myself as separate from what is not myself. In being conscious, a being reacts to the world with feeling, with pleasure and pain, and responds on the basis of felt needs.... Consciousness involves reacting to stimuli and feeling stimuli (1997, pp. 22,38).

The phrase "self-consciousness," at times, can be equally ambiguous, as it may include: (1) proneness to embarrassment in social settings; (2) the ability to detect our own sensations and recall our recent actions; (3) self-recognition; (4) the awareness of awareness; and (5) self-knowledge in the broadest sense (see Zeman, 2001, 124: 1264). O'Hear went on to suggest:

> A self-conscious person, then, does not simply have beliefs or dispositions, does not simply engage in practices of various sorts, does not just respond to or suffer the world. He or she is aware that he or she has beliefs, practices, dispositions, and the rest. It is this awareness of myself as a subject of experience, as a holder of beliefs, and an engager in practices, which constitutes my self-consciousness. A conscious animal might be a knower, and we might extend the epithet "knower" to machines if they receive information from the world and modify their responses accordingly. **But only a self-conscious being knows that he is a knower** (pp. 23-24, emp. added).

Neurobiologist Antonio Damasio believes that consciousness comes in two different forms. First is "**core consciousness**," which is limited to the here and now, and is what we share with other higher primates.



The second, which is the ingredient humans possess that makes us unique, he has labeled as "**extended consciousness**." This type of consciousness adds awareness of past and future to the mix (see Tattersall, 2002, p. 73). Nobel laureate Gerald Edelman, director of neurosciences and chairman of the department of neurobiology at the Scripps Research Institute (1992, pp. 117-123), believes we should distinguish between what he calls "primary consciousness" (equivalent to Damasio's "core consciousness") and "higher-order consciousness" (equivalent to Damasio's "extended consciousness"). [Stanford University biologist Paul Ehrlich prefers the terms "consciousness" and "intense consciousness" (2000, pp. 110-112).]

What is involved in the transition from primary to higher consciousness is that the subject of the consciousness does not merely "have" experiences, but is able, over and above that, to refine, alter, and report its experiences. Primary consciousness lacks any notion of an experience or self. In other words, a "non-self-conscious" creature is aware of and/or able to react to stimuli. But higher-order consciousness represents an awareness of the plans, ideas, and concepts by which one makes one's way in the world.

Ian Tattersall commented: "...[I]f consciousness were something more susceptible to scientific analysis than it is, we would certainly know a lot more about it by now than we do—which is very little indeed" (p. 59). Donald Johanson and Blake Edgar, in their book, *From Lucy to Language*, admitted that "consciousness, being inherently singular and subjective, is a tricky prospect for objective scientific analysis..." (1996, p. 107). True enough. But, as it turns out, defining it is no less of a "tricky prospect." Nobel laureate Sir Francis Crick was not even willing to give it a try. In his book, *The Astonishing Hypothesis: The Scientific Search for the Soul*, he lamented:

> Everyone has a rough idea of what is meant by consciousness. It is better to avoid a **precise** definition of consciousness because of the dangers of premature definitions. Until the problem is understood much better, any attempt at a formal definition is likely to be either misleading or overly restrictive or both. If this seems like cheating, try defining for me the word **gene** (1994, p. 20, emp. in orig.).

Richard Leakey, on the other hand, was at least willing to inquire: "What **is** consciousness? More specifically, what is it **for**? What is its **function**? Such questions may seem odd, given that each of us experiences life through the medium of consciousness, or self-awareness" (1994, p. 139, emp. in orig.). Indeed, such questions **do** seem a bit odd, considering all the "press" given to the subject of consciousness over the past many years. But, as Adam Zeman wrote in the extensive review of consciousness he prepared for the July 2001 issue of the scientific journal, *Brain*: "Whether scientific observation and theory will yield a complete account of consciousness remains a live issue" (124:1264). A "live issue" indeed! Just getting scientists and philosophers to agree on a standard, coherent definition seems to be an almost impossible task. In

his 1997 volume, *The Large, the Small and the Human Brain*, British mathematical physicist Sir Roger Penrose asked: "**What is consciousness? Well, I don't know how to define it. I think this is not the moment to attempt to define consciousness, since we do not know what it is...**" (p. 98, emp. added; Penrose's central thesis is that consciousness must be "something outside of **known** physics," p. 102).

But the fact that "we do not know what it is" has not prevented people from offering a variety of definitions for "our most precious possession," consciousness. Johanson and Edgar went on to say:

> First, **what is consciousness? No single definition may suffice for such an elusive concept**, but we can describe consciousness as self-awareness and self-reflection, the ability to feel pain or pleasure, the sensation of being alive and of being us, the sum of whatever passes through the mind (p. 107, emp. added).

Their suggestion that "no single definition may suffice for such an elusive concept" has been echoed by several others who have broached the puzzle of consciousness. In his 2001 book, *A Mind So Rare*, Canadian psychologist Merlin Donald commented:

> [W]e must mind our definition of consciousness. It is not really a unitary phenomenon, and allows more than one definition. In fact, it encompasses at least three classes of definition. The first is the definition of consciousness as a **state**.... A second class of functional definition takes an **architectural** approach, whereby consciousness is defined as a place in the mind.... The third definition of consciousness takes a frankly human-centered view of cognition and has more to do with enlightenment, or illumination, than with mere attention. This is the **representational** approach... (pp. 118,119, 120, emp. in orig.).

For University of Washington neurobiologist William Calvin, consciousness consists of "contemplating the past and forecasting the future, planning what to do tomorrow, feeling dismay when seeing a tragedy unfold, and narrating our life story." For Cambridge University psychologist Nicholas Humphrey, an essential part of consciousness is "raw sensation." According to Steven Harnad, editor of the respected journal, *Behavioral and Brain Sciences*, "consciousness is just the capacity to have experiences" (for documentation of statements by Calvin, Humphrey, and Harnad, see Lewin, 1992, pp. 153-154). And, even though Roger Penrose started out by admitting, "I don't know how to define it; I think this is not the moment to attempt to define consciousness, since we do not know what it is," that did not prevent him from offering up his own set of definitions for consciousness.

> It seems to me that there are at least two different aspects to consciousness. On the one hand, there are **passive** manifestations of consciousness, which involve **awareness**. I use this category to include things like perceptions of colour, of harmonies, the use of memory, and so on. On the other hand, there are its **active** manifestations, which involve concepts like free will and the carrying out of actions under our free will (1997, pp. 98-99, emp. in orig.).

Notice how often "consciousness" seems to be tied to "awareness" (or "self-consciousness" to "self-awareness")? There's a reason for that: the two frequently are used interchangeably in the scientific and philo-

sophical literature. Eccles noted: "One can also use the term self-awareness instead of self-consciousness, but I prefer self-consciousness because it relates directly to the self-conscious mind" (1992, p. 3). The late evolutionist of Harvard, Kirtley F. Mather, offered his personal opinion when he said: "[A]wareness is a term that I prefer to consciousness" (1986, p. 126). In his book, *The Evolution of Consciousness*, Stanford University biologist Robert Ornstein suggested: "**Being conscious is being aware of being aware**. It is one step removed from the raw experience of seeing, smelling, acting, moving, and reacting" (1991, pp. 225-226, emp. added).

Paul Ehrlich, in his 2000 text, *Human Natures: Genes, Cultures, and the Human Prospect*, also addressed the intriguing concept of "self" consciousness.

> We have a continuous sense of "self"—of a little individual sitting between our ears—and, perhaps equally important, a sense of the threat of death, of the potential for that individual—our self—to cease to exist. I call all of this sort of awareness **"intense consciousness"; it is central to human natures and is perhaps the least understood aspect of those natures** (p. 110, emp. added).

And, last but not least, of course, let it be noted that even though certain scientists and philosophers do not know what consciousness **is**, they do know what it **is not**. As evolutionary humanist Jerome W. Elbert put it in his 2000 book, *Are Souls Real?:*

> We can define consciousness as **what it is like to be a person who is awake or dreaming and has a normally functioning brain**.... By our definition, consciousness is interrupted by dreamless sleep, and it returns when we awaken or have a dream. By almost anyone's definition, consciousness leaves when a person is under general anesthetic during surgery. The fact that consciousness can be halted and restarted is evidence that it is due to the operation of a process, rather than the presence of a **spiritual entity**. This is consistent with the view that consciousness arises from a dynamic process within the brain, rather than from the presumable continuous indwelling of a soul (p. 223, emp. in orig.).

Or, to quote Roger Penrose: "I am suggesting that **there are not mental objects floating around out there which are not based in physicality"** (1997, p. 97, emp. added). So much, then, for the idea that self-consciousness or self-awareness has any "spiritual" origin or significance.

WHY—AND HOW—DID CONSCIOUSNESS ARISE?

When Sir Karl Popper and Sir John Eccles stated in their classic text, *The Self and Its Brain*, that "**the emergence of full consciousness...is indeed one of the greatest of miracles**," they did not overstate the case (1977, p. 129). Be sure to notice their use of the word "emergence." The "miracle" of the "emergence" of consciousness has to do with two things: (1) the **reason** for its existence; and (2) the **fact** of its existence. In other words, **why** did consciousness arise, and **how** did it do so?

Why Did Consciousness Arise?

From the outset, let us state what is accepted as common knowledge (and what is just as readily admitted) within the scientific community: evolutionary theory cannot begin to explain **why** consciousness arose. In our estimation, one of the most fascinating books published within the last thirty years was a volume with the seemingly unprofessional title, *The Encyclopaedia of Ignorance* (see Duncan and Weston-Smith, 1977). But, although the title may appear somewhat whimsical, the content of the volume is anything but. In chapter after chapter, distinguished, award-winning scientists (such as Nobel laureate Sir Francis Crick and two-time Nobel laureate Linus Pauling) enunciated and explained some of the most important things in the world—**things of which science is completely ignorant**. Interestingly, one of the chapters in the book, written by Richard Gregory (professor of neuropsychology and director of the brain and perception laboratory at the University of Bristol in England), was "Consciousness." In his discussion, Dr. Gregory asked:

> Why, then, do we **need** consciousness? What does consciousness have that the neural signals (and physical brain activity) do not have? Here there is something of a paradox, for if the awareness of consciousness does not have any effect—if consciousness is not a causal agent—then it seems useless, and so should not have developed by evolutionary pressure. If, on the other hand, it is useful, it must be a causal agent: but then physiological description in terms of neural activity cannot be complete. Worse, we are on this alternative stuck with mentalistic explanations, which seem outside science (1977, p. 277, parenthetical item and emp. in orig.).

In this brief assessment, Gregory has isolated several key points. First, what does consciousness have that the brain does not? Second, if consciousness does not have some "real function," then, obviously, nature would have "selected against" it—and it never would have appeared in the first place. Third, if consciousness does indeed have some function, in light of our knowledge about how the neural network of the brain operates, **what is that function**? And if there is beneficial function, why haven't the brains of animals selected for it? To echo Gregory's question, "Why do we **need** consciousness?"

Good question. Philosopher Michael Ruse noted some of the major hurdles involved in "nature" being able to "select" for consciousness when he asked:

> Even if one agrees that consciousness is in some sense connected to or emergent from the brain—and how could one deny this?—**consciousness must have some biological standing in its own right**.... But what is consciousness, and what function does it serve? Why should not an unconscious machine do everything that we can do? (2001a, p. 72, emp. added).

Some materialists, of course, have suggested that a machine **can** do "everything we can do." The eminent British physiologist Lord E.D. Adrian, in the chapter he authored on "Consciousness" for the book, *Brain and Conscious Experience*, concluded: "As far as our public behavior is concerned, **there is nothing that could not be copied by machinery, nothing therefore that could not be brought within the framework of physical science**" (1965, p. 240, emp. added). [Lord Adrian's remarks were made at a scientific symposium held at the Vatican during the week of September 28-October 4, 1964. Following his speech, the seminar participants engaged in a round-table discussion that centered on Adrian's lecture. One of those in attendance was Wilder Penfield, the renowned Canadian neurosurgeon, who dryly responded to Lord Adrian: "I had in mind to ask whether the robot could, in any conceivable way, see a joke. I think not. Sense of humor would, I suspect, be the last thing that a machine would have" (as quoted in Eccles, 1966, p. 248). Brilliant stroke! So much for a machine being able to do everything humans can do.]

Evolutionary theory has no adequate answer to the question of how consciousness arose, as evolutionists Eccles and Robinson admitted.

> [A]ll materialist theories of the mind are in conflict with biological evolution.... Evolutionary theory holds that only those structures and processes that significantly aid in survival are developed in natural selection. **If consciousness is causally impotent, its development cannot be accounted for by evolutionary theory** (1984, p. 37, emp. added).

Or, as Gregory had noted years earlier:

> If the brain was developed by Natural Selection, we might well suppose that consciousness has survival value. But for this it must, surely, have causal effects. **But what effects could awareness, or consciousness, have?** (1977, p. 276, emp. added).

Evolutionists may not be able to explain what causal effect(s) consciousness might possibly have that would endow it with a "survival value" significant enough for "nature" to "select," but one thing is certain: most of them are not willing to go so far as to suggest that consciousness does not exist, or that it is unimportant to humanity. As Ruse put it:

> The average evolutionist, however, particularly the average Darwinian, feels extremely uncomfortable with such a dismissive attitude. **Consciousness seems a very important aspect of human nature**. Whatever it may be, consciousness is so much a part of what it is to be human that Darwinians are loath to say that natural selection had no or little role in its production and maintenance (2001b, pp. 197, emp. added).

While the "average Darwinian" may indeed be "extremely uncomfortable" with the suggestion that natural selection had "no or little role in the production and maintenance of consciousness," the truth of the matter is that no Darwinian can explain **why**, or **how**, natural selection could have played any part whatsoever in such a process. Yet, as Richard Heinberg observed in his book, *Cloning the Buddha: The Moral Impact of Biotechnology*:

> Since no better material explanation is apparently available, it is assumed that whatever explanation is at hand —however obvious its shortcomings —**must be** true. Natural selection thus becomes an inscrutable, godlike agency capable of producing miracles (1999, p. 71, emp. in orig.).

From an evolutionary viewpoint, consciousness doesn't **do** anything. It doesn't "help" the neural circuits in the brain. It apparently doesn't have any "great biological significance," and it doesn't seem to bestow any innate "survival benefit" on its possessor. We ask, then, **what is left**? Or, to repeat Gregory's question: "Why do we **need** consciousness?"

Why Do We Need Consciousness?

From an evolutionary viewpoint, maybe we don't. W.H. Thorpe, in his chapter, "Ethology and Consciousness," for the book, *Brain and Conscious Experience*, asked regarding consciousness: "Is there a good selective reason for it, or is there just no reason at all why the animal should not have got on quite as well without having developed this apparently strange and new faculty?" (1965, p. 497). Perhaps, amidst all the other "happenstances" resulting from billions of years of evolution, consciousness is, to put it bluntly, a "quirky accident." Ironically (or maybe not), those are the exact words the late evolutionist Stephen Jay Gould used to describe the origin of consciousness when he said:

> The not-so-hidden agenda in all this is a concern with human consciousness. You can't blame us for being fascinated with consciousness; it's an enormous punctuation in the history of life. **I view it as a quirky accident** (as quoted in Lewin, 1992, pp. 145-146, emp. added).

Or, as Sir Fred Hoyle observed of Gould's reference to consciousness being "an enormous punctuation in the history of life": "Professor Gould accepts human consciousness as an exception to his general thesis; it is a phenomenon sudden in its appearance and exceptional in its nature" (Hoyle and Wickramasinghe, 1993, p. 177). Theodosius Dobzhansky suggested:

> Self-awareness is, then, one of the fundamental, and possibly the most fundamental, characteristic of the human species. **This characteristic is an evolutionary novelty**; the biological species from which mankind has descended had only rudiments of self-awareness, or perhaps lacked it altogether (1967, p. 68).

An "exceptional evolutionary novelty?" Truth be told, it is **so** exceptional that some evolutionists have given up altogether trying to figure out why consciousness exists in the first place. One such prominent figure in the field is British philosopher Colin McGinn. In speaking about McGinn's views on our inability to explain the origin of consciousness, James Trefil wrote in his book, *Are We Unique?:*

> Others have suggested more esoteric arguments about the fundamental unknowability of consciousness. For example, philosopher Colin McGinn of Rutgers University has suggested, on the basis of an argument from evolutionary theory, that the human mind is simply not equipped to deal with this particular problem. His basic argument is that **nothing in evolution has ever required the human mind to be able to deal with the operation of the human brain** (1997, p. 186, emp. added).

In his 2000 volume, *Human Natures: Genes, Cultures, and the Human Prospect*, Paul Ehrlich discussed this particular situation as well when he remarked that McGinn doubts

> ...that we will ever understand how a pattern of electrochemical impulses in our nervous systems is translated into the rich experience of, say, watching an opera or flying an airplane. He believes that **our minds did not evolve in such a way as to enable us to answer that question, which may be fated to remain unanswered for a very long time, if not forever** (p. 112).

Some evolutionists, however, are not quite ready to throw in the towel just yet. Rather than admit defeat, they have opted to defend the view that the "why" of consciousness has something to do with the brain—although they admittedly are not at all sure **what** or **how**. Stephen Jay Gould believed that the brain evolved, got bigger, and somehow produced consciousness as an "exaptation." What, exactly, is an exaptation? Let Gould explain.

> [W]hat shall we call structures that contribute to fitness, but evolved for other reasons, and were later co-opted for their current role? They have no name at present, and [Elisabeth] Vrba and I suggest that they be called "exaptations" (1984, p. 66; for Vrba reference, see Gould and Vrba, 1982).

In other words, a big brain did not evolve in order to "produce consciousness." If you will pardon the unintended truism, it had other things "on its mind." Instead, for one reason or another (that no one seems quite able to explain), consciousness "just happened" as a fortuitous and unexpected by-product. Gould discussed human consciousness as one of the brain's "exaptive possibilities" when he wrote:

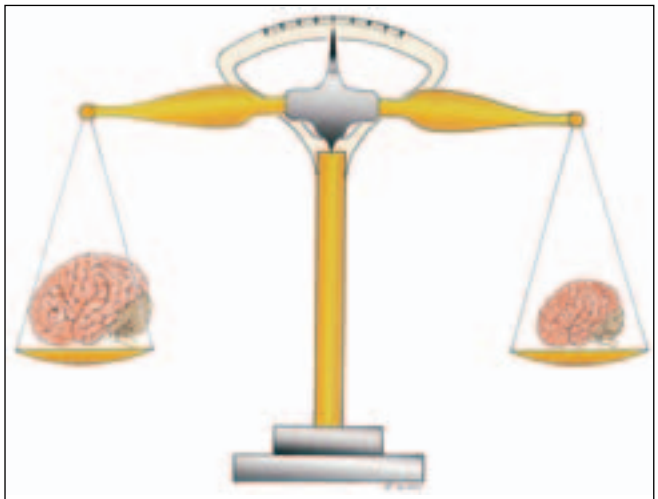
> An arm built for one thing can do others (I am now typing with fingers built for other purposes). But a brain built for some functions can do orders of magnitude more simply by virtue of its basic construction as a flexible computer. **Never in biological history has evolution built a structure with such an enormous and ramifying set of exaptive possibilities**. The basis of human flexibility lies in the unselected capacities of our large brain (1984, pp. 67-68, parenthetical item in orig., emp. added).

One thing remains certain: consciousness does appear to be connected to the brain. Yet that causes as many problems as it does solutions, as Gregory observed:

> We believe that consciousness is tied to living organisms: especially human beings, and more particularly to specific regions of the human brain.... This in turn generates the question: "What is the relation between consciousness and the matter or functions of the brain?" ...One trouble about consciousness is that it cannot be (or has not yet been) isolated from brains, to study it in different contexts (1977, pp. 274,276, parenthetical item in orig.).

Richard Leakey chimed in to agree:

> The most obvious change in the hominid brain in its evolutionary trajectory was, as noted, a tripling of size. Size was not the only change, however; the overall organization changed, too. **...This difference in organization presumably underlies in some way the generation of the human mind** as opposed to the ape mind. If we knew when the change in configuration occurred in human prehistory, we would have a clue about the emergence of human mind (1994, pp. 145, emp. added).



Scale of intelligence according to brain size

One widely held view regarding the jump from the three pounds of matter inside a human skull being "just" a brain, to the type of complex brain that permits and/or produces consciousness, appears to be that once the brain reached a certain size, consciousness more or less just "tagged along for the ride." Or, as Ruse hypothesized:

> General opinion (my opinion!) is that somehow, as brains got bigger and better during animal evolution, consciousness started to emerge in a primitive sort of way. Brains developed for calculating purposes and **consciousness emerged and, as it were, got dragged along**. Most Darwinians think that at some point, consciousness came into its own right (2001b, pp. 197-198, parenthetical item in orig., emp. added).

There are, however, a number of "alternative explanations" for why the brain ultimately developed consciousness. Gregory listed just a few (out of a sizable number) when he wrote:

> It has been suggested that: (1) mind and brain are not connected (epiphenomenalism); or (2) that the brain generates consciousness; or (3) that consciousness drives the brain; or (4) that they both work in parallel (like a pair of identical clocks) without causal connection (1977, p. 279, parenthetical items in orig.).

Then again, there are those who are not quite so ecstatic about the concept of increased brain size being solely responsible for something as important and quixotic as consciousness. For example, in his book, *Complexity: Life at the Edge of Chaos*, Roger Lewin observed:

> I found many biologists distinctly uncomfortable with talking about increase in brain size as a measure of complexity. "I'm hostile to all sorts of mystical urges toward great complexity," said Richard Dawkins when I asked him whether an increase in computational complexity might be considered an inevitable part of the evolutionary process. "You'd like to think that being able to solve problems contributes to Darwinian fitness, wouldn't you?," said John Maynard Smith. "But it's hard to relate increased brain size to fitness. After all, bacteria are fit" (1992, p. 146).

Steven Pinker, the eminent psychologist from MIT, is no happier with the idea that "a big brain explains it all" than some of the rest of his evolutionary colleagues. In *The Language Instinct*, he lamented:

> **A large-brained creature is sentenced to a life that combines all the disadvantages of balancing a watermelon on a broomstick, running in place in a down jacket, and for women, passing a large kidney stone every few years. Any selection on brain size itself would surely have favored the pinhead**. Selection for more powerful computational abilities (language, perception, reasoning, and so on) must have given us a big brain as a by-product—not the other way around! (1994, pp. 374-375, parenthetical items in orig., emp. added).

Furthermore, "brain size," as it turns out, does not live up to its vaunted reputation. Brain size and intellect among living people have been thoroughly explored by,

among others, such scientists as evolutionist W. LeGros Clark, who reported that skulls from humans of normal intelligence vary in cranial capacity anywhere from 900cc to 2,300 cc. In fact, Dr. Clark discussed one completely normal human being whose brain size was a mere 720 cc (see Clark, 1958, pp. 357-360, Howe, 1971, p. 213).

If natural selection did not "choose" consciousness (because it has no "causal effects"), if (from an evolutionary point of view) consciousness has no known function, and if "evolving a big brain" is not an adequate explanation for consciousness—then, to repeat our original question, **why** did consciousness arise in the first place? What does it **do**?

Some evolutionists have suggested that consciousness arose "so that people could process language." But, as Wright noted:

> People who claim to have a scientific answer usually turn out to have misunderstood the question. For example, some people say that consciousness arose so that people could process language.... But, whatever it may feel like, the (often unspoken) premise of modern behavioral science is that when you are in conversation with someone, all the causing happens at a physical level. That someone flaps his or her tongue, generating physical sound waves that enter your ear, triggering a sequence of physical processes in your brain that ultimately result in the flapping of your own tongue, and so on. In short: the **experience** of assimilating someone's words and formulating a reply is superfluous to the assimilation and the reply, both of which are just intricate mechanical processes (2000, p. 307, parenthetical item and emp. in orig.).

Peter Wilson asked:

> But how is self-consciousness possible?...We might choose to cite certain suggestions that language is the prerequisite, for it is only with the aid of language that we can find the way to give reality, by articulation to the inchoate intuition of the divided self. But language may play this role only in a mechanical sense, by providing a means of **expressing** and **symbolizing** consciousness (1980, pp. 85-86, emp. in orig.).

"Expressing" and "symbolizing" consciousness, however, are not the same as "explaining" consciousness.

Alwyn Scott, in his book, *Stairway to the Mind: The Controversial New Science of Consciousness*, suggested that "consciousness gives an evolutionary advantage to the species that develops it" (1995, p. 162). But what, specifically, might that advantage be? W.H. Thorpe chose the simplest option of all: "The production of consciousness may have been an evolutionary necessity, in that it may have been the only way in which highly complex living organisms could become fully viable" (1965, p. 493). Adam Zeman, in the review of the subject of consciousness that he wrote for the journal, *Brain*, chose a different tact: "[I]t can be argued, at a conceptual level, that the concept of one's own mind presupposes the concept of other minds" (2001, 124:1281). In an article he wrote for *New Scientist* titled "Nature's Psychologists" (and, later, in his book, *A History of the Mind*), Nicholas Humphrey seized on that thought to provide one example of the type of theories that have been proposed to explain the "evolutionary advantage" of consciousness. He suggested that the purpose of consciousness is to allow "social animals" to model another's behavior on the basis of their insight into another creature's psychological motivation. In other words, our knowledge of our own mental states supplies us with insight into the mental states underlying the actions of others—which then: (a) provides us with the ability to predict what someone else is likely to do; and (b) thereby becomes a major determinant of our own biological success (1978). Or, as Paul Ehrlich asked:

> What could have been the selective advantage that led to the evolution of intense consciousness? This type of consciousness helps us to maneuver in a complicated society of other individuals, each of whom is also intensely conscious. Intense consciousness also allows us to play without acting out the plans and to consider that other individuals probably also are planning (2000, p. 113).

Not to be outdone, Merlin Donald, in *A Mind So Rare*, offered up his own supposition. "Conscious capacity," he wrote, "may be seen as an evolutionary adaptation in its own right, whose various functions have evolved to optimize or boost cognitive processing" (2001, p. 131). [Ah, yes—"optimizing cognitive processing." And exactly how would consciousness (which, as Dr. Eccles admitted, is "causally impotent") accomplish that?] Then, last, but certainly not least, Ruse weighed in with his guess.

> Slowly but positively, brain scientists do feel that they are groping toward some understanding of the virtues of consciousness, over and above the operation of blind automata. It is felt that **consciousness may act as a kind of filter and guide—coordinating all the information thrown up by the brain.** Consciousness helps to prevent the brain from getting overloaded, as happens all too often with computers. Consciousness regulates experience, sifting through the input, using some and rejecting some and storing some... (2001b, p. 198, emp. added).

Thus, consciousness, so we are told: (a) acts a filter or guide to coordinate all the information thrown up by the brain; (b) prevents the brain from getting overloaded; (c) regulates experience; (d) sifts through input into the brain; and (d) rejects some experience and stores others. Pretty impressive achievement, wouldn't you say, for the nebulous "something" referred to as consciousness that, supposedly, "natural selection had no or little role in producing" (Ruse), "is causally impotent" (Eccles), "is fundamentally unknowable" (McGinn), and "is not a causal agent" (Gregory). And that, in turn, brings us to our next question.

How Did Consciousness Arise?

It is not enough to ask **why** consciousness arose. One also must inquire as to **how** consciousness originated. In *Man: The Promising Primate*, Wilson asked:

> [H]ow is it possible for one species, the human, to develop consciousness, and particular self-consciousness, to such a degree that it becomes of critical importance for the individual's sanity and survival? And what is the meaning of this development in and for human evolution? (1980, p. 84).

Human consciousness is so pervasive, and so undeniable, that the mechanism of its existence **must** be explained. But how? One practically can envision Stephen Jay Gould shrugging his shoulders in exasperation, and sighing in frustration, as he admitted: "...[W]e must view the evolution of human consciousness as a lucky accident that occurred only by the fortunate (for us) concatenation of numerous improbabilities" (1984, p. 64, parenthetical item in orig.). Five years later, he continued in the same vein: "*Homo sapiens* may form only a twig, but if life moves, even fitfully, toward greater complexity and higher mental powers, then the eventual origin of self-conscious intelligence may be implicit in all that came before" (1989, p. 45). After another five years had passed, he wrote:

> *Homo sapiens* did not appear on the earth, just a geologic second ago, because evolutionary theory predicts such an outcome based on themes of progress and increasing neural complexity. Humans arose, rather, as a fortuitous and contingent outcome of thousands of linked events, any one of which could have occurred differently and sent history on an alternative pathway that would not have led to consciousness (1994, 271[4]:86).

Then, two years later, in his book, *Full House: The Spread of Excellence from Plato to Darwin*, Dr. Gould concluded:

> If a large extraterrestrial object—the ultimate random bolt from the blue—had not triggered the extinction of dinosaurs 65 million years ago, mammals would still be small creatures, confined to the nooks and crannies of a dinosaur's world, and incapable of evolving the larger size that brains big enough for self-consciousness require. If a small and tenuous population of protohumans had not survived a hundred slings and arrows of outrageous fortune (and potential extinction) on the savannas of Africa, then *Homo sapiens* would never have emerged to spread throughout the globe. **We are glorious accidents of an unpredictable process with no drive to complexity, not the expected results of evolutionary principles that yearn to produce a creature capable of understanding the mode of its own necessary construction** (1996, p. 216, parenthetical item in orig., emp. added).

While it is convenient to surmise that consciousness is the result of a "contingent outcome of thousands of linked events," or a "glorious accident," such speculation does not explain **how** consciousness arose. So how did it arise?

On occasion (quite often, in fact), evolutionists have been known to criticize creationists for their reliance on what the evolutionists see as "just-so" stories (a phrase from Rudyard Kipling's children's book of the same title, in which fanciful explanations are offered for adaptations, such as the elephant's trunk). But, as the old adage suggests, "the sauce that is good for the goose also is good for the gander." Or, to put it another way, evolutionists are not above weaving their own "just-so" stories—when it suits their purpose.

Stephen Jay Gould—effective popularizer of evolution that he was—spun a fascinating tale of how he thought consciousness evolved. By his best guess, **human consciousness is rooted in the destruction of the dinosaurs** 65-70 million years ago as the result of a giant asteroid hitting the Earth and driving them to extinction (1996, p. 216).

Does this strike you as a bit odd? Does it leave you wondering exactly how the dinosaurs' demise could possibly account for, of all things, **human consciousness**? Little wonder, then, that Dr. Gould concluded in an article ("The Evolution of Life on the Earth") he wrote for the October 1994 issue of *Scientific American*: "*H. sapiens*

is but a tiny, late-arising twig on life's enormously arborescent bush—a small bud that would almost surely not appear a second time if we could replant the bush from seed and let it grow again" (271[4]:91).

As far as Gould and many of his colleagues are concerned, *Homo sapiens* may be nothing but a "tiny twig" or a "small bud." But human consciousness ("our most precious possession," "the greatest of miracles") has defied every attempt by evolutionists to explain either the reason for its existence or the mechanism leading to its development. Further complicating matters is the obvious and undeniable fact that our consciousness/self-awareness allows us to experience (and express!) what Roger Penrose has referred to as "non-computable elements"—things like compassion, morality, and many others—that mere neural activity is extremely hard pressed to explain. As Dr. Penrose put it:

> There are some types of words which would seem to involve non-computable elements—for example, judgement, common sense, insight, aesthetic sensibility, compassion, morality.... These seem to me to be things which are not just features of computations.... If there indeed exists some sort of contact with Platonic absolutes which our awareness enables us to achieve, and which cannot be explained in terms of computational behaviour, then **that seems to me to be an important issue** (1997, p. 125, first ellipsis in orig., second ellipsis and emp. added).

An important issue? Talk about understatement! It is difficult enough to try to invent "just-so" stories to explain **why** consciousness arose in the first place, and then to explain **how** it did so. But to try to explain the role that consciousness plays in such "important issues" within humanity as common sense, judgment, aesthetics, compassion, and morality—well, let's just say that Michael Ruse had it right when he observed: "I hardly need say that **all of these suggestions raise as many questions and problems as they answer**. Philosophers and scientists are working hard toward answers and resolutions" (2001b, pp. 199-200, emp. added). Anthony O'Hear, in his book, *Beyond Evolution: Human Nature and the Limits of Evolutionary Explanation*, remarked: "What is crucially at issue here is not how human self-consciousness might have come about, but what its significance is once it has come about" (1997, p. 22).

In a special April 10, 2000 issue of *Time* magazine devoted to the subject of "Visions of Space and Science," Steven Pinker, professor of brain and cognitive sciences at MIT and author of *How the Mind Works*, produced an article titled "Will the Mind Figure Out How the Brain Works?," in which he concluded:

> Will we ever understand the brain as well as we understand the heart, say, or the kidney? Will mad scientists or dictators have the means to control our thoughts? Will neurologists scan our brains down to the last synapse and duplicate the wiring in a silicon chip, giving our minds eternal life?
>
> No one can say. The human brain is the most complex object in the known universe, with billions of chattering neurons connected by trillions of synapses. No scientific problem compares to it. (The Human Genome Project, which is trying to read a long molecular sentence composed of billions of letters, is simple by comparison.) .... **One challenge is that we are still clueless about how the brain represents the content of our thoughts and feelings** (2000, 155[4]:91, parenthetical item in orig., emp. added).

Or, as brain scientist John Beloff admitted in an article titled "The Mind-Brain Problem": "The fact is that, leaving aside mythical and religious cosmologies, **the position of mind in nature remains a total mystery**.... At present there is no agreement even as to what would count here as decisive evidence" (1994, emp. added).

We would like to close this discussion about **how** consciousness arose with the following statements from Bryan Appleyard.

> Hard science will fight back at this point by attempting to deny this is a problem at all. Self-consciousness is merely a by-product of evolutionary complexity. Animals develop larger brains as survival mechanisms. Over millions of years these brains attain awesome levels of miniaturization and organization; indeed, they become the most complicated things in the universe. Then, one day, this complexity gives rise to something utterly unprecedented.... The reason such explanations feel inadequate, even though, as children of the scientific age, we probably accept them at the back of our minds, is that they are incoherent. **They do not explain self-consciousness, they explain complexity.**
>
> Of course, the hard evolutionist may still respond by claiming that this is a by-product of complexity. The elaborations and anomalies of our language and our awareness are merely a kind of surplus capacity to idle that happens to occur in the brain.... In reality, they are trivial—in the words of Peter Atkins they are "special but not significant."
>
> But, again, this is incoherent. How can it be "not significant" that we are able to use and understand the words "not significant"? What meaning can the word "significant" have in such a context? Significant to what? **If self-consciousness is "not significant," then where on earth is significance to be found?** (1992, pp. 194,195-196, emp. added).

We could not have said it any better ourselves. If human consciousness does not rank as being "significant," what does?

EVOLUTIONARY BIAS AND THE ORIGIN OF HUMAN CONSCIOUSNESS

Bias is a difficult thing to admit. It also is a difficult thing to overcome. Some would even say impossible. Donald Johanson, in his book, *Lucy: The Beginnings of Humankind* (which discusses *Australopithecus afarensis*, arguably the best-known "hominid" fossil in the world), addressed this issue in an admirably candid manner when he wrote: "There is no such thing as a total lack of bias. I have it; everybody has it." But Dr. Johanson did not stop there. He went on to note: "**The insidious thing about bias is that it does make one deaf to the cries of other evidence**" (Johanson and Edey, 1981, p. 277, emp. added).

Oh, how true. And the veracity of this assessment is especially evident when the bias involves an intractable determination to live without God. Will Durant was a self-proclaimed humanist and avowed atheist, yet he nevertheless wrote: "The greatest question of our time is not communism vs. individualism, not Europe vs. America, not even the East vs. the West; it is whether men can bear to live without God" (1932, p. 23).

The steely resolve "to live without God" has become the mantra of many scientists and philosophers. Sir Julian Huxley, himself an atheist, compared God to the disappearing act performed by the Cheshire cat in *Alice's Adventures in Wonderland* when he wrote: "The supernatural is being swept out of the universe.... God is beginning to resemble not a ruler, but the last fading smile of a cosmic Cheshire cat" (1957, p. 59). To Huxley, and thousands of others like him, "the God argument" has been effectively routed.

Disbelief in God, though, is an *a priori* decision that **is not based on evidence!** Time and again, eminent atheists, agnostics, skeptics, and infidels have made their positions in this regard crystal clear. The widely published comments of the late biochemist and science writer, Isaac Asimov, are an excellent example. In a thought-provoking interview by the editor of *The Humanist*, Paul Kurtz, Dr. Asimov was asked how he would classify himself. He responded: "Emotionally, I am an atheist. I don't have the evidence to prove that God doesn't exist, but I so strongly suspect he doesn't that I don't want to waste my time" (Asimov, 1982, 2[2]:9).

Once a person comes to the decision that he "strongly suspects" that God does not exist, where does that leave him? With God out of the picture, two facts become prominent—and problematic—very quickly. First, a naturalistic system of origins (i.e., organic evolution) **must** be invoked to explain, not just man's origin, but **everything**! As Huxley went on to say three years after he made the above statement: "The earth was not created; it evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body. So did religion" (1960, pp. 252-253).

George Gaylord Simpson of Harvard wrote that evolution "achieves the aspect of purpose without the intervention of a purposer, and has produced a vast plan without the action of a planner" (1947, p. 489). In a strictly reductionist scheme, the idea that organisms deliberately pursue goals must be rejected, since "purpose" cannot be reduced to the laws of physics. Biologist Alex Novikoff wrote: "Only when purpose was excluded from descriptions of all biological activity...could biological problems be properly formulated and analyzed" (1945, 101:212-213).

Another scientist from Harvard, E.O. Wilson (who is acknowledged as the "father of sociobiology"), weighed in on this same theme in his book, *On Human Nature*, when he commented on the very first page: "If humankind evolved by Darwinian natural selection, genetic chance and environmental necessity, not God, made the species" (1978, p. 1). Or, as Brown University evolutionist Kenneth Miller put it in his 1999 volume, *Finding Darwin's God*:

> My particular religious beliefs or yours notwithstanding, **it is a fact that in the scientific world of the late twentieth century, the displacement of God by Darwinian forces is almost complete**. This view is not always articulated openly, perhaps for fear of offending the faithful, but the literature of science is not a good place to keep secrets. Scientific writing, especially on evolution, shows this displacement clearly (p. 15, emp. added).

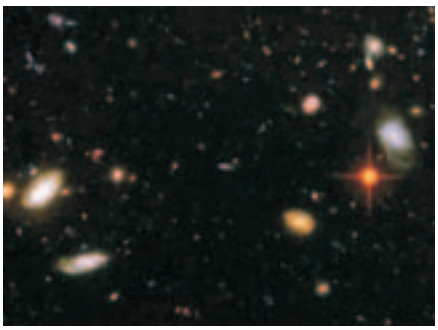
Second, with God seemingly having been "displaced," like it or not, man is on his own. Simpson remarked in his book, *Life of the Past*:

> **Man stands alone in the universe**, a unique product of a long, unconscious, impersonal material process with unique understanding and potentialities. **These he owes to no one but himself, and it is to himself that he is responsible**. He is not the creature of uncontrollable and undeterminable forces, but is his own master. He can and must decide and manage his own destiny (1953, p. 155, emp. added).

Nobel laureate Jacques Monod, in his dismally depressing *magnum opus*, *Chance and Necessity*, concluded: "Man at least knows he is alone in the unfeeling immensity of the universe, out of which he has emerged only by chance" (1971, p. 180). But Monod's comments are "lighthearted" compared to those of another Nobel laureate. Steven Weinberg, in his book about the origin and fate of the Universe, *The First Three Minutes*,

penned what many believe are some of the most seriously disheartening words imaginable. Read them and weep.

> As I write this I happen to be in an airplane at 30,000 feet, flying over Wyoming en route home from San Francisco to Boston. Below, the earth looks very soft and comfortable—fluffy clouds here and there, snow turning pink as the sun sets, roads stretching straight across the country from one town to another. **It is very hard to realize that this all is just a tiny part of an overwhelmingly hostile universe**. It is even harder to realize that this present universe has evolved from an unspeakably unfamiliar early condition, and faces a future extinction of endless cold or intolerable heat. **The more the universe seems comprehensible, the more it also seems pointless** (1977, pp. 154-155, emp. added).



Picture taken in 2004 by the Hubble space telescope of the structure and organization of a portion of the Universe.

Alas, then, as Richard Leakey and Roger Lewin put it in their book, *Origins*: "There is no law that declares the human animal to be different, as seen in this broad biological perspective, from any other animal" (1977, p. 256). A bleak thought, to be sure—but from an evolutionist's self-imposed view, inescapably true nevertheless.

Perhaps now is the time to ask: **Where does all of this inevitably lead?** Actions have consequences, and beliefs have implications. In a chapter titled "Scientific Humanism" in his book, *The Humanist Alternative*, Paul Kurtz concluded:

> To adopt such a scientific approach unreservedly is to accept as **ultimate in all matters of fact and real existence the appeal to the evidence of experience alone—a court subordinate to no higher authority**, to be over-ridden by no prejudice however comfortable (1973, p. 109, emp. added).

That "higher authority" must be avoided at all cost. Herman J. Eckelmann, in an article titled "Some Concluding Thoughts on Evolutionary Belief," echoed an interesting refrain when he asked: "Is it possible that one can have too high an emotional stake in wanting to have a God-less universe?" (1991, p. 345). That "emotional stake" is a driving force behind the refusal to submit to that "higher authority." If you doubt that, then listen to the admission of Harvard geneticist Richard Lewontin.

> We take the side of science *in spite* of the patent absurdity of some of its constructs, *in spite* of its failure to fulfill many of its extravagant promises of health and life, *in spite* of the tolerance of the scientific community for unsubstantiated just-so stories, because **we have a prior commitment, a commitment to naturalism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our *a priori* adherence to material causes** to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for **we cannot allow a Divine Foot in the door** (1997, p. 31, italics in orig., emp. added).

Or, as Alwyn Scott confessed:

> **In the realm of science, one's attitude toward what Karl Popper called "the great tradition of materialism" is often used as an index of respectability**. Those who turn away from this tradition to consider the nature of consciousness run the risk of being marked as flakes who might also believe in psychokinesis (spoon bending), mental telepathy, clairvoyance, precognition, and the like. **The safest course—especially for the young scientist—is to shun such temptations and concentrate on the data from a particular level of the hierarchy** (1995, p. 167, parenthetical item in orig., emp. added).

Materialism in Light of Human Consciousness

Once the scientists and philosophers have admitted their bias against God and the supernatural, and therefore have limited themselves to the purely naturalistic explanations offered by organic evolution, they are severely constrained in regard to how they can explain human consciousness—what Popper and Eccles called "the greatest of miracles." These individuals desperately desire—indeed, must have—evolution as an explanation for "whatever exists" (and that certainly includes human consciousness). As Sir Francis Crick put it:

> "The ultimate aim of the modern movement in biology is in fact to explain **all** of biology in terms of physics and chemistry" (1966, p. 10, emp. added). Emil du-Bois-Reymand (1818-1896), the founder of electrochemistry, and Hermann von Helmholtz (1812- 1894), the famed German physiologist and physicist who was the first to measure the speed of nerve impulses, agreed: "**All** the activities of living material, including consciousness, are ultimately to be explained in terms of physics and chemistry" (as quoted in Leake, 1964, sec. 4, pp. 5-6, emp. added). Richard Leakey observed:
>
> > This is one of the paradoxes of *Homo sapiens*: we experience the unity and diversity of a mind shaped by eons of life as hunter-gatherers. We experience its unity in the common possession of an awareness of self and a sense of awe at the miracle of life. And we experience its diversity in the different cultures—expressed in language, customs, and religions—that we create and that create us. **We should rejoice at so wondrous a product of evolution** (1994, p. 157, emp. added).
>
> Robert Ornstein wrote in *The Evolution of Consciousness*:
>
> > Our mind did not spring from a designer, nor from a set of ideal and idealized programs.... Instead, **it evolved on the same adaptive basis as the rest of biological evolution**, using the processes of random generation and selection of what is so generated.... The story of the mind lies in many accidents and many changes of function (1991, pp. 4-5, emp. added).
>
> Ornstein went on to say:
>
> > Working in such boundless time, all evolution needs is a tiny and consistent advantage at any point for things to add up.... In millions of years, and with a generation time of five years, there is an immense time for adaptations to tally up in prehumans. And, in living beings who reproduce quickly (in animals, generation times are only three or four years, and in bacteria, almost no time), major changes can occur in only a few thousand years. *E. coli*, the bacterium of choice for research, has a generation cycle of hours. Granted so much time, and selection for advantages, all the **biological miracles have had *plenty* of time and *plenty* of chance to have happened** (p. 28, parenthetical item and italics in orig., emp. added).
>
> Alan Dressler dryly commented in his book, *Voyage to the Great Attractor*: "The universe has invented a way to know itself" (1994, p. 335).

Or has it? Can "biological miracles" occur just because there is supposed to have been "plenty of time and plenty of chance?" Monod wistfully wrote: "Chance alone is the source of every innovation, of all creation in the biosphere.... All forms of life are the product of chance..." (1972, pp. 110,167). Such a view, however, ascribes to "chance" properties that it does not, and cannot, possess. Sproul, Gerstner, and Lindsley addressed this logical fallacy and concluded: "Chance is incapable of creating a single molecule, let alone an entire universe. Why not? Chance is no thing. It is not an entity. It has no being, no power, no force. It can effect nothing for it has no causal power within it" (1984, p. 118).

One of the twentieth century's most eminent evolutionists was French zoologist Pierre-Paul Grassé, "whose knowledge of the living world," according to evolutionary geneticist Theodosius Dobzhansky, "was encyclopedic" (1975, 29:376). In his classic tome, *Evolution of Living Organisms*, Dr. Grassé candidly addressed the idea of chance being responsible for evolution when he wrote: "**To insist...that life appeared quite by chance and evolved in this fashion is an unfounded supposition which I believe to be wrong and not in accordance with the facts**" (1977, p. 107, emp. added).

Grassé also addressed, as did Ornstein in his quote above, bacterial generation times and their relevance to evolution. In fact, Dr. Grassé discussed the very microorganism, *Escherichia coli*, that Ornstein mentioned—yet drew an entirely different conclusion.

> Bacteria, the study of which has formed a great part of the foundation of genetics and molecular biology, are the organisms which, because of their huge numbers, produce the most mutations. ...[B]acteria, despite their great production of intraspecific varieties, exhibit a great fidelity to their species. The bacillus *Escherichia coli*, whose mutants have been studied very carefully, is the best example. The reader will agree that **it is surprising, to say the least, to want to prove evolution and to discover its mechanisms and then to choose as a material for this study a being which practically stabilized a billion years ago** (p. 87, emp. added).

In spite of all this, numerous scientists and philosophers exhibit a dogged determination to explain the incredible nature of human consciousness—a determination that, if we may kindly say so, is itself **incredible**! And they are not the least bit shy about admitting their built-in bias. Colin McGinn put the matter in perspective quite well when he said:

> **Resolutely shunning the supernatural**, I think it is undeniable that it must be in virtue of *some* natural property of the brain that organisms are conscious. There just *has* to be some explanation for how brains [interact with] minds (1993, p. 6, italics in orig., emp. added).

In other words, now that it has been declared (by what almost amounts to divine fiat) that **God** did not do it, then it's obvious that "something else" must have. There just **has** to be some **naturalistic** explanation for how brains interact with minds! As Gordon Allport summarized the problem: "For two generations, psychologists have tried every conceivable way of accounting for the integration, organization and striving of the human person without having recourse to the postulate of a self" (1955, p. 37).

Whatever that explanation may be, and wherever that "self" may have come from, there is one thing evolutionists know it is **not**—God and the supernatural. Ian Glynn, in his book, *An Anatomy of Thought: The Origin and Machinery of the Mind*, admitted as much when he wrote:

> My own starting position can be summed up in three statements: first, that the only minds whose existence we can be confident of are associated with complex brains of humans and some other animals; second, that we (and other animals with minds) are the product of evolution by natural selection; and, third, that **neither in the origin of life nor in its subsequent evolution has there been any supernatural interference—that is, anything happening contrary to the laws of physics. ...If the origin of life can be explained without invoking any supernatural processes, it seems more profitable to look elsewhere for clues to an understanding of the mind** (1999, p. 5, emp. added).

Scott addressed this same concept.

> What, then, is the essence of consciousness? An answer to this question requires the specification of an "extra ingredient" beyond mere mechanism. Traditionally this ingredient has been called the *soul*, although the behaviorists dealt with the hard problem by denying it. **From the perspective of natural science, both of these approaches are unacceptable** (1995, p. 172, italics in orig., emp. added).

Crick wrote:

> The idea that man has a disembodied soul is as unnecessary as the old idea that there was a Life Force. This is in head-on contradiction to the religious beliefs of billions of human beings alive today. How will such a radical change be received? (1994, p. 261).

The commitment to materialism and naturalism evinced by such statements is overwhelming. Claude Bernard, the progenitor of modern physiology, believed that the cause of **all** phenomena is **matter**, and that determinism is "the foundation of all scientific progress and criticism" (as quoted in Kety, 1960, 132:1863). Thomas Huxley reflected this position when he observed: "Thoughts are the expression of molecular changes in the matter of life, which is the source of our other vital phenomena" (1870b, p. 152). Huxley also said: "Mind is a function of matter, when that matter has attained a certain degree of organization" (1871, p. 464). He therefore concluded: "Thought is as much a function of matter as motion is" (1870a, p. 371).

Radical Materialism—A "Fishy" Theory

These strained machinations—each of which is invoked to deny any place to God and the supernatural—remind us of the now-famous story told by Sir Arthur Eddington in his book, *The Philosophy of Physical Science*, about the ichthyologist and his "special" net for catching fish.

> Let us suppose that an ichthyologist is exploring the life of the ocean. He casts a net into the water and brings up a fishy assortment. Surveying his catch, he proceeds in the usual manner of a scientist to systematise what it reveals. He arrives at two generalisations: (1) No sea-creature is less than two inches long. (2) All sea-creatures have gills. These are both true of his catch, and he assumes tentatively that they will remain true however often he repeats it. In applying this analogy, the catch stands for the body of knowledge which constitutes physical science, and the net for the sensory and intellectual equipment which we use in obtaining it. The casting of the net corresponds to observation; for **knowledge which has not been or could not be obtained by observation is not admitted into physical science**. An onlooker may object that the first generalisation is wrong. "There are plenty of sea-creatures under two inches long, only your net is not adapted to catch them." The ichthyologist dismisses this objection contemptuously. "Anything uncatchable by my net is *ipso facto* outside the scope of ichthyological knowledge. In short, "what my net can't catch isn't

> fish." Or—to translate the analogy—If you are not simply guessing, you are claiming a knowledge of the physical universe discovered in some other way than by the methods of physical science, and admittedly unverifiable by such methods. You are a metaphysician (1958, p. 16).

In November 1982, at the Isthmus Institute in Dallas, Texas, four renowned evolutionists who were Nobel laureates—Sir John Eccles, Ilya Prigogine, Roger Sperry, and Brian Josephson—took part in a series of very frank discussions narrated by Norman Cousins, the highly esteemed editor of the *Saturday Review* for more than a quarter of a century. Three years later, in 1985, the four Nobel laureates released an absolutely amazing book, *Nobel Prize Conversations*, containing the entire text of those discussions, along with Mr. Cousins' narrative comments. In his "Prelude," Cousins wrote:

> Although each represented a different scientific discipline they had one thing in common: each had received the Nobel Prize, each had used the gifts of intelligence they had received in service of human life....
>
> Another element also unites the four Nobel Laureates. **Each of them is concerned about the relation between the human mind and human brain, about the role of human consciousness in an evolving universe, about the interplay between time and mind, about the world as a "work of art" which cannot simply be reduced to neural events within the brain or to immutable mechanisms measured by quantum analysis** (pp. 4-5, emp. added).

In his book, *The Wonder of Being Human: Our Brain and Our Mind*, Dr. Eccles wrote:

> When such troubles arise in the history of thought, it is usual to adopt some belief that "saves" the day. For example, the denial of the reality of mental events, as in radical materialism, is an easy cop-out.... **Radical materialism should have a prominent place in the history of human silliness** (Eccles and Robinson, 1984, p. 17, emp. added).

We agree wholeheartedly! It is comforting to know that there are men of science as esteemed as Sir John Eccles who are willing to admit as much. It also is comforting to know that there are other individuals of the same stature in science who are willing to step forward and say essentially the same thing. Consider, as just one example, the information that follows in the conclusion to this portion of our discussion.

CONCLUSION

As we bring Part I of this series to a close, we would like to leave you with the thought-provoking comments of Nobel laureate Brian Josephson. But before we do, we would like to offer Mr. Cousins' assessment of what you are about to read.

> Dr. Josephson has proposed that **the inclusion of God or Mind in science is not only plausible, but may even be necessary if science is ever to fully understand Nature** or to overcome its difficulties in explaining phenomena like evolution and creativity (p. 95, emp. added).

Now, Josephson's remarks:

> Firstly, science casts the spotlight which it uses to search for knowledge very selectively; in other words **what scientists choose to look at, to try to explain in scientific terms, is rather restricted, rather biased. And the content of science is biased in a materialistic direction**....
>
> An alternative approach for the scientist is to say, Let's investigate the opposite view, i.e., that **perhaps we should be taking God or Mind into account in science**; what would a science look like which had God in there playing a part, accounting thereby for particular phenomena? There are various ways into this problem, and the way I'm going to take is to say **that if we want to put God or Mind into science, then the primary feature of Mind, the one which is most closely connected with the science we've got, is intelligence** (as quoted in Cousins, 1985, pp. 91,92-93,94, parenthetical item in orig., emp. added).

How very refreshing! And the fact that such statements come from a Nobel laureate who is an admitted evolutionist, is, to say the very least, surprising. But Dr. Josephson is not alone in such thinking. The eminent British theoretical physicist (and former Master of Queen's College, Cambridge) John Polkinghorne expressed similar thoughts in an article he wrote in 2001 ("Understanding the Universe") for publication in the *Annals of the New York Academy of Sciences*.

> Those of us privileged to be scientists are so excited by the quest to understand the workings of the physical world that we seldom stop to ask ourselves why we are so fortunate. **Human powers of rational comprehension vastly exceed anything that could be simply an evolutionary necessity for survival, or plausibly construed as some sort of collateral spin-off from such a necessity**....
>
> I believe that science is possible because the physical world is a creation and we are, to use an ancient and powerful phrase, creatures "made in the image" of the Creator.... With, for example, Paul Davies in his book *The Mind of God*, **I cannot regard this dawning of consciousness as being just a fortunate accident in the course of an essentially meaningless cosmic history**....
>
> What I have sought to show is that religious believers who see a divine Mind and Purpose behind the universe are not shutting their eyes and irrationally believe impossible things. **We have reason for our beliefs**. They have come to us through that search for motivated understanding that is so congenial to the scientist (950:177,178,179,182, emp. added).

Human powers of rational comprehension do indeed "vastly exceed anything that could be simply an evolutionary necessity." The primary feature of mind, it seems, is intelligence—which we see all around us. Perhaps that is what drove Eddington to say, shortly before he died: "The idea of a universal mind, or Logos, would be, I think, a fairly plausible inference from the present state of scientific theory" (as quoted in Heeren, 1995, p. 233). Or, as John Beloff put it in his article on "The Mind-Brain Problem":

> ...**[T]he position of mind in nature remains a total mystery. It could be that there exists some sort of a cosmic mind**, perhaps co-equal with the material universe itself, **from which each of our individual minds stems and to which each ultimately returns.** All we can say is that it looks as if a fragment of mind-stuff becomes attached to an individual organism, at or near birth, and thereafter persists with this symbiotic relationship until that organism perishes (1994, emp. added).

Again, we say, how very refreshing.

Materialism certainly has not disproved the existence of our oh-so-vital "inner self." Nor will it ever. Steven Goldberg, in his book, *Seduced by Science,* was correct when he explained:

> **Modern science certainly does not claim that it can prove the nonexistence of the soul.** On the contrary, the dominant philosophical assumption of most twentieth-century scientists has been precisely the opposite: science deals with falsifiable propositions, that is, propositions that can be demonstrated wrong in an empirical test.... [S]cience simply does not speak to the validity of other systems, such as metaphysics, pure mathematics, or logic (1999, p. 18).

Eccles warned in his Gifford Lectures (presented at the University of Edinburgh in 1977-1978):

> We must not claim to be self-sufficient. **If we espouse the philosophy of monist-materialism, there is no base on which we can build a meaning for life or for the values**. We would be creatures of chance and circumstance. All would be determined by our inheritance and our conditioning. Our feeling of freedom and of responsibility would be but an illusion. As against that I will present my belief that **there is a great mystery in our existence and in our experiences of life that is not explicable in materialist terms** (1979, p. 10, emp. added).

After one has rightly rejected monistic materialism, what, then, is left? Eccles and Robinson observed:

> We reject materialism because, as we have seen, it doesn't **explain** our concepts but denies them. It is at this point that we, as noble and rational beings, can give vent to the urgings of faith; not faith as the veil of ignorance, sloth, or fear, but faith as a state of mind vindicated by the efforts of reason and common sense (1984, p. 173, emp. added).

It is invigorating to see a man of the stature of Sir John Eccles speak of faith being "vindicated by the efforts of reason and common sense." Roger Sperry went on to say: "More than ever there is need today to raise our sights to higher values above those of material self-interest, economic gain, politics, production power, daily needs for personal subsistence, etc, to higher, more long term, more god-like priorities" (as quoted in Cousins, 1985, pp. 158-159). German physicist Max Planck, in his *Scientific Autobiography and Other Papers* (1950), wrote:

> Religion and natural science do not exclude each other, as many contemporaries of ours would have us believe or fear; they mutually supplement and condition each other. The most immediate proof of the compatibility of religion and natural science, even under the most thorough critical scrutiny, is the historic fact that the very greatest natural scientists of all times —men such as Kepler, Newton, Leibniz —were permeated by a most profound religious attitude. Religion and natural science are fighting a joint battle in an incessant, never relaxing crusade against skepticism and against dogmatism, against disbelief and against superstition, and the rallying cry in this crusade has always been, and always will be: "On to God!" (as quoted in Eccles, 1992, p. 247).

Sadly, however, the perception persists that "faith" has somehow "lost out" to science —an idea that Dr. Eccles worked feverishly during his lifetime to dispel. In the end, Eccles was compelled to admit:

> We have to be open to some deep dramatic significance in this earthly life of ours that may be revealed after the transformation of death. We can ask: What does this life mean? We find ourselves here in this wonderfully rich and vivid conscious experience and it goes on through life; but is that the end? This self-conscious mind of ours has this mysterious relationship with the brain and as a consequence achieves experiences of human love and friendship, of the wonderful natural beauties and of the intellectual excitement and joy given by appreciation and understanding of our cultural heritages. Is this present life all to finish in death or can we have hope that there will be further meaning to be discovered?... (1992, p. 251).

Twenty-five years earlier, Dr. Eccles had been even more specific. He wrote, incredibly:

> The arguments presented by [American biologist H.S.] Jennings **preclude me from believing that my experiencing self has an existence that merely is derivative from my brain** with its biological origin, and with its development under instructions derived from my genetic inheritance. If we follow Jennings, as I do, in his arguments and inferences, **we come to the religious concept of the soul and its special creation by God**....
>
> I cannot believe that this wonderful divine gift of a conscious existence has no further future, no possibility of another existence under some other, unimaginable conditions (1967, p. 24, emp. added).

Neither can we!

[to be continued]

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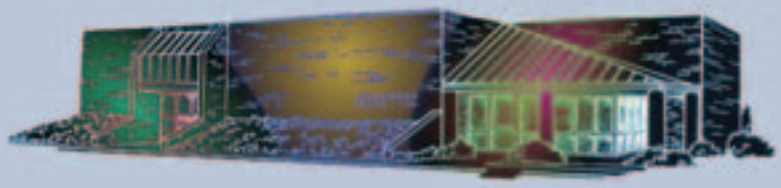

INTRODUCING OUR NEW GENERAL MANAGER—TOMMY HATFIELD

In my "Note from the Editor" in the January issue of *Reason & Revelation*, I mentioned to you that this year—2004—represents our twenty-fifth anniversary. From its inception in 1979 to this very day, I have been quietly positioning Apologetics Press to do exactly what it was designed a quarter of a century ago to do—produce biblically sound, scientifically accurate, affordable materials, while simultaneously serving as a "clearinghouse" to anyone and everyone who needs answers to questions that are vital to building, sustaining, and defending a biblically based faith.

Across that quarter of a century, the work has experienced a growth that is as incredible as it is exciting. From a seemingly insignificant beginning with a staff of two, it has emerged into a major force in Apologetics that is recognized around the globe. And that tiny staff of two has morphed into a staff of twelve.

No, make that **thirteen**. It is with a great deal of pleasure and pride that I announce the addition to my staff of the young man who has accepted my offer to serve as our new general manager, **Tommy Hatfield**. In 1998, I hired Jim Estabrook to fill this same position. And he has done so with great distinction—so much so that as of this month, I have promoted him to the new position of Production Administrator. In his new assignment, Jim will be in charge of our entire in-house computer/information technology system (which is state-of-the-art, extensive, and complex, and includes all of our wireless and T-1 Internet technology). In addition, he will be fully responsible for all of our typesetting operations, and will work side by side with Charles McCown to produce all of our written, audio, and video materials. [Charles also has been promoted as of this month to the position of Production Administrator, which will place him in charge of: (a) our entire graphics design department (including both a scientific illustrator and a graphics design artist): (b) the production and publication of all A.P. journals, books and, other publications; and (c) the maintenance of our various Web sites.]

Tommy (who has completed two years toward his baccalaureate degree in math at Faulkner University in Montgomery, Alabama) is an incredibly ingenious, resourceful, and talented young man, and is one of the hardest workers I've ever had the pleasure of knowing. Give him an assignment, then turn him loose. An hour or so later (or less!), and it's completed—to perfection! [And this is the rule, not the exception.]

I had known Tommy personally for quite some time, and had seen his character shine through on numerous occasions. So when it came time for me to hire someone to replace Jim as general manager (after his promotion), the choice was obvious. I needed someone who is a dedicated Christian, honest, articulate, self-motivated, and diligent to a fault. In Tommy, I got all of this—and much, much more. He already has endeared himself to each member of my staff, not just by his actions, but by his attitude. He has an extraordinarily keen intellect, a terrific sense of humor, and an amazing work ethic that is one of the most exceptional I've ever seen in someone his age. [He's 22, by the way, and on June 21, 2003, married his high school sweetheart, Carol Leah Kelly—whose family I've known for more than a decade and a half.]

Tommy and Carol Leah are now a full-fledged part of what we routinely refer to as the "A.P. Family," and all of us at Apologetics Press are extremely proud to have them in our midst as our coworkers. I invite you to join us in welcoming them.

Bert Thompson