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THE ORIGIN OF THE BRAIN AND MIND [PART II]

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[EDITOR'S NOTE: Part I of this two-part series appeared in the January issue. Part II follows below, and continues, without introductory comments, where the first article ended.]

Researchers have long known that an animal's body size plays a critical role in brain size (Gibbons, 1998, 280:1345). Whales and elephants, for example, compensate for their large brains by an increased size in other organs that provide energy (e.g., larger heart and lungs provide more oxygen). But humans do not follow this rule. In the context of the so-called primates, the human brain is approximately "three times larger than the value predicted for an 'average' monkey or ape with our body size" (Jones, et al., 1992, 116). If evolutionists are right, the human brain has tripled in size since the era when "Lucy" (aka *Australopithecus afarensis*) walked the Earth, yet our bodies have yet to even double. According to primatologist Robert D. Martin, humans "have the largest brain size relative to body size among placental mammals" (as quoted in Gibbons, 280:1345). Yet, as Ernst Mayr admitted:

> **What is perhaps most astonishing is the fact that the human brain seems not to have changed one single bit since the first appearance of *Homo sapiens*, some 150,000 years ago.** The cultural rise of the human species from primitive hunter-gatherer to agriculture and city civilizations took place without an appreciable increase in brain size. It seems that in an enlarged, more complex society, a bigger brain is no longer rewarded with a reproductive advantage (2001, p. 252, emp. added).

One question that evolutionists have difficulty answering is why "other animals" have not similarly "evolved" larger brains. If humans somehow were able to surmount all of the physiological and energy-related obstacles standing in the way of growing larger brains, why have reptiles, birds, or fish not followed suit? Exactly how is our brain different from those of animals? Was it forced to grow larger and "rewire" as we climbed out of trees and changed our diets? Hardly! Evolutionists candidly admit that "our brain is unusually large," and that "its internal wiring shows only subtle differences from other mammals" (Jones, et al., p. 107). But if the wiring is essentially the same, and if we know of animals that have larger brains, then what accounts for the vast differences we see between human intelligence and animal intelligence?

Equally important, of course (at least from a human vantage point), is the question: What caused the tremendous increase in **human** brain size? Scientists admit that no one knows. Donald Johanson and Blake Edgar wrote: "**We cannot answer exactly why we evolved our large brains**" (1996, p. 80, emp. added). Ornstein conceded:

> **We look at whether the human mind is, in part, an accident. Its evolution turns around a central question: Why is our brain so big?** Why have a brain capable of not only chess when there was no game, but of building guided missiles when there was no metal or chemistry or writing? For the brain (which is the most "costly" neural material in the body) ballooned up radically 2 million years ago, and the "usual suspects" for this expansion don't seem to have primary responsibility. It was not language, it was not tools, it was not bipedalism alone. **The brain seems to have increased in size before all the organized societies, cooperation, and language would have had any call for such a development. This is the central mystery of the mind:** It is difficult to see why we are so advanced relative to our nearest ancestors. We aren't just a slightly better chimp, and it's difficult, on reflection, to figure out why. This gigantic cortex has given us our adaptability as well as the extra capacity to adapt to the

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heights of the Himalayas, the Sahara Desert, the wilds of Borneo, even to central London....

Life challenges alone were probably not enough to inspire the astonishing rapidity of brain growth. **There must have been another reason**.... This development occurred well before organized society or language and long before technology. It is an amazing spurt in growth in the most complicated structure in all biology (1991, pp. 8, 37, parenthetical item in orig., emp. added).

But was it the brain's size alone that allowed for these "nonadaptive side consequences"? Apparently not, as Johanson and Edgar went on to note.

In absolute size, the human brain breaks no records. Elephant brains exceed ours by a factor of four, and some whale brains are even bigger.... Monkeys, apes, and humans possess the biggest brains relative to body weight of any terrestrial mammal. So, part of the answer is that the human brain is just a highly elaborated ape brain. Yet this is still something different, something unique, about the size of the human brain. Our brain is three times larger than the predicted size for a hypothetical non-human primate of average body size.... **But size isn't everything**. Our brain also differs significantly from those of apes in the proportion of various parts.... The human brain is a sponge that soaks up sensations and observations, and it is a masterful organ for storing, retrieving, and processing a wide range of detailed and complicated information.... So, **size alone does not explain our unusual mental abilities**. What counts is what's inside the package, and how it is all arranged... (p. 80, emp. added).

In part one of this series, we quoted Ian Tattersall, who concluded his assessment of the brain with these words:

There's a huge amount, of course, that we don't know about how the brain works, and especially about how a mass of chemical and electrical signals can give rise to such complex effects as cognition and consciousness (1998, p. 70).

We also quoted Richard Morris, who lamented:

Scientific knowledge of the brain is woefully incomplete. **Scientists do not know how the brain acquires and stores information, how it produces feelings of pleasure and pain, or how it creates consciousness. The functioning of the human brain is a profound mystery** (2001, p. 200, emp. added).

We could not have said it better ourselves! Evolutionists do not know how the brain evolved. Nor do they possess much understanding about how the brain acquires and stores information, in spite of decades of intensive research. Mayr readily admitted: "The synapses, for instance, apparently play an important role in memory retention, but how they do so is almost entirely unknown" (2001, p. 252). Similarly, evolutionists do not know how the brain creates consciousness (a subject we will examine in an in-depth fashion in future installments).

Yet the leading candidate to serve as a potential evolutionary explanation for the mind (and then, ultimately, consciousness) is, perhaps somewhat conspicuously, the brain. Some (like MIT psychologist Steven Pinker and his colleagues) believe that the brain evolved its specific regions with a purpose (if you will pardon the pun) "in mind." Others, like Stephen Jay Gould and his cohorts, have suggested that, to quote Ornstein, "structures that evolved for one purpose later changed their function" and gave rise to consciousness (1991, p. 33). Not much agreement here, to be sure.

But there is one place where a consensus **does** exist. Monroe Strickberger, in his textbook, *Evolution*, put it like this: "[A]lthough we do not yet know the precise relationship between the matter of the brain (neurons, synapses, and so on) and the thoughts and feelings it produces, **that such a relationship exists is no mystery**" (2000, p. 56, parenthetical item in orig., emp. added). **That** a relationship between brain, mind, and consciousness exists may be "no mystery." But **why** and **how** that relationship exists, certainly **is**!

Perhaps it is because of the mystery that surrounds the various functions and attributes of the brain that, as our knowledge of the brain has multiplied in what sometimes seems to be almost a geometric progression, it is becoming increasingly popular to "downplay" the extreme complexity of the brain itself—no doubt in the hope that the general populace will begin to think like this: "Well, if the once-impenetrable fortress of humanity that is the human brain has now been breached and explained by science, then we have answered evolution's most critical problem!" Nice sentiment, to be sure—but not anywhere close to the truth.

Attempts to minimize the brain's amazing abilities have become rather commonplace, it seems. Consider just one example. In an article on mind/body problems titled "The Power of Mood" that he authored for the January 20, 2003 issue of *Time* magazine, Michael D. Lemonick commented:

The brain, after all, is only another organ, and it operates on the same biochemical principles as the thyroid or the spleen. What we experience as feelings, good or bad, are at the cellular level no more than a complex interaction of chemicals and electrical activity (2003a, 161[3]:66, emp. added).

In the introductory article ("Your Mind, Your Body") he wrote to accompany the feature articles in that same issue of *Time*, Lemonick went on to suggest:

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> **Mind and body, psychologists and neurologists now agree, aren't that different.** The brain is just another organ, albeit more intricate than the rest. ...Scientists are also learning something else. Not only is the mind like the rest of the body, but the well-being of one is intimately intertwined with that of the other. **This makes sense because they share the same systems**—nervous, circulatory, endocrine and immune (2003b, 161[3]:63, emp. added).

Russell Stannard, in *The God Experiment: Can Science Prove the Existence of God?*, wrote:

> It is a widely held assumption that nothing goes on in the brain that is markedly different from what happens in inanimate matter. Although the processes occurring in the brain are undoubtedly more intricate because of the extreme complexity of the physical structure, **they are nevertheless all to be held accountable for—in principle—through the operation of the well-established laws of nature** (2000, p. 45, emp. added).

The human brain. LifeART image copyright (2003) Lippincott Williams & Wilkins. All rights reserved. Used by permission.

Tufts University philosopher Daniel Dennett, in an interview on this very subject, said matter-of-factly: "The mind is somehow nothing but a physical phenomenon. **In short, the mind is the brain**..." (as quoted in Lewin, 1992, p. 157, emp. added). Nuland took the same approach.

> **The mind is a man-made concept**, a way to categorize and contemplate the manifestations of certain physical and chemical actions that occur chiefly in the brain. It is a product of anatomic development and physiologic functioning. What we call the mind is an activity, made up of a totality of the innumerable constituent activities of which it is composed, brought to awareness by the brain. The brain is the chief organ of the mind, but not its only one. In a sense, every cell and molecule in the body is a part of the mind, and every organ contributes to it. **The living body and its mind are one—the mind is a property of the body** (1997, p. 349, emp. added).

In *The Astonishing Hypothesis*, Francis Crick even went so far as to suggest that it soon may be possible to identify specific neurons in the brain that cause consciousness. He asserted that, eventually, all mind processes, including consciousness, will be explicable as nothing more than the firing of neurons—i.e., in terms of interactions between atoms and molecules (1994, pp. 3, 259). Steven Pinker is on record as stating: "**Nothing in the mind exists except as neural activity**" (1997b, emp. added). B.A. Farrel announced bluntly: "A human being is a modulator of pulse frequencies, and nothing more" (as quoted in Allan, 1989, p. 63). Or, as Jerome Elbert put it: "I **do** maintain that 'mental events can be reduced to brain events' " (2000, p. 265, emp. in org.). He then predicted:

> Science will probably succeed in describing how our consciousness arises from natural processes. It will probably explain how thinking, reasoning, emotions, motivations, and intuition function as a result of the activity of the brain, and as a result of the brain interacting with the rest of the body and the outside world (p. 268).

Think with us for a moment, however, about the implications of what you have just read. Beliefs have consequences! If: (a) "what we experience as feelings, good or bad, are at the cellular level no more than a complex interaction of chemicals and electrical activity"; (b) "mind and body...aren't that different"; (c) "the mind is a property of the body" and "mind is a man-made concept"; (d) "nothing in the mind exists except as neural activity," **what does all of this mean**?

Let Steven Pinker explain. He believes (as noted above) that "nothing in the mind exists except as neural activity." Would it surprise you to learn, then, that in a *New York Times* article, Dr. Pinker suggested that women who murder their newborn babies may not be either mad or evil, but simply unconsciously obeying "primeval instincts to sacrifice their children for the good of the tribe"? (see Blanchard, 2000, p. 382). In his fascinating book, *Does God Believe in Atheists?*, John Blanchard addressed Pinker's suggestion: "This is the logical outworking of materialism, **but if reducing the brain's activity to electrical impulses can sanction murder, what can it condemn?"** (p. 382, emp. in orig).

What indeed? Atheistic philosopher Michael Ruse admitted that if evolution is accepted as true, then "**morality is no more... than an adaptation**, and as such has the same status as such things as teeth and eyes and noses" (1995, p. 241, emp. added). But if, as Ruse went on to say, "morality is a creation of the genes" (p. 290), then by what criterion, or group of criteria, do humans make moral decisions? Reichenbach and Anderson commented on this very issue when they wrote:

> Reductionism, however, threatens the very concept of the person. Where persons' actions and beliefs are ultimately explainable in terms of unpredictable neural firings and chemical transfers, those acts and beliefs are no longer the purposeful product of human choice. ...**This means that reductionism is particularly disastrous for morality, not to mention our concept of personhood itself** (1995, p. 279, emp. added).

And what place is there for that famed human possession, "free will"? Are we merely products of our environment? Does input truly equal output? Nancey Murphy recognized the quandary of losing our free will, and reducing the brain to little more than matter.

> First, if mental effects can be reduced to brain events, and the brain events are governed by the laws of neurology (and ultimately by the laws of physics), then in what sense can we say that humans have free will? Are not their intendings and willings simply a product of blind physical forces, and thus are not their willed actions merely the product of the blind forces? (1998, p. 131).

She went on to comment:

> Second, if mental events are simply the products of neurological causes, then what sense can we make of reasons? That is, we give reasons for judgments in all areas of our intellectual lives—moral, aesthetic, scientific, mathematical. It seems utter nonsense to say that these judgments are merely the result of the blind forces of nature (p. 131).

Have we no option but to do whatever our genes have programmed us to do? In other words, how can the materialist escape the stranglehold of determinism—the idea which suggests, as its name implies, that everything we do is "determined," and that we have, in essence, no free will. This farcical idea is exactly what Cornell professor William Provine has advocated. In 1998, during "Darwin Day" at the University of Tennessee at Knoxville, he delivered the keynote lecture titled "Evolution: Free Will and Punishment and Meaning in Life." During his lecture, he displayed a slide that

stated: "Finally, free will is nonexistent." It went on to note: "Free will is the worst of all cultural inventions. Belief in free will fuels our revenge-minded culture" (see Provine, 1998).

In the now-famous text of his Compton Lectures, *Objective Knowledge: An Evolutionary Approach*, British philosopher Sir Karl Popper made the point that even if determinism **were** true, it could not be argued, since any argument is itself presumably predetermined by purely physical conditions—as would be any and all opposing arguments. As Popper put it:

> According to determinism, any such theories—such as, say, determinism—are held because of a certain physical structure of the holder (perhaps of his brain). Accordingly, we are deceiving ourselves (and are physically so determined as to deceive ourselves) whenever we believe that there are such things as arguments or reasons which make us accept determinism. Or in other words, physical determinism is a theory which, if it is true, is not arguable, since it must explain all our reactions, including what appear to us as beliefs based on arguments, as due to **purely physical conditions**. Purely physical conditions, including our physical environment, make us say or accept whatever we say or accept... (1972, p. 223, emp. added).

In their book, *The Wonder of Being Human: Our Brain and Our Mind*, Sir John Eccles and his co-author Daniel Robinson commented on the correctness of Popper's assessment—and the absurd nature—of determinism when they observed: "This is an effective *reductio ad absurdum*" (reduction to the absurd—BH/BT]. They then went on to state: "This stricture applies to all of the materialist theories" (1984, p. 38; cf. also Eccles, 1992, p. 21). Indeed, it **is** absurd. And yes, it **does** apply to "all of the materialist theories."

A good illustration of this is the life, teachings, and actions of the French novelist commonly known as the Marquis de Sade (1740-1814), who gave his name to sadism, in which a person derives sexual satisfaction from inflicting pain and humiliation on others. De Sade argued that, since everything is chemically determined, whatever is, is right. The distinguished microbiologist, Lynn Margulis, and her co-author/son Dorion Sagan, discussed this very point in their book, *What is Life?*

> The high-born Frenchman Donatien Alphonse Francois de Sade (1740-1814) keenly felt the vanishing basis for morality. **If Nature was a self-perpetuating machine and no longer a purveyor of divine authority, then it did not matter what he, as the infamous marquis de Sade, did or wrote** (1995, p. 40, emp. added).

Or, as Ravi Zacharias put it: "Thinking atoms discussing morality is absurd" (1990, p. 138).

In his book, *In the Blood: God, Genes and Destiny*, Steve Jones suggested that criminal behavior was determined largely by genetic make-up (1996, pp. 207-220). In discussing Jones' book, one writer, Janet Daley, insisted that if genetics is indeed ultimately responsible for "bad" traits, it also must account for "good" ones. She observed: "If we can never be truly guilty, then we can never be truly virtuous either." Daley went on to say:

> Human beings are only capable of being moral insofar as they are free to choose how they behave. If they have no power to make real choices—if their freedom to decide how to act is severely limited by forces outside their control—then it is nonsense to make any ethical judgements about them. It would be wrong, as well, to base a judicial system on the assumption that people are free to choose how they will act. The idea of putting anyone on trial for anything at all becomes absurd (1996).

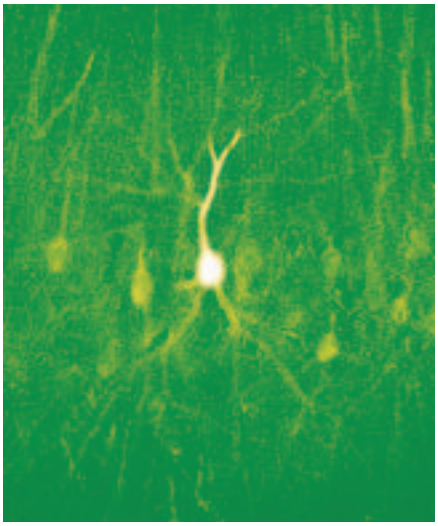
In fact, attempting to locate a "basis for morality" in the blind outworkings of nature is futile. As Ruse put it: "There is no justification for morality in the ultimate sense" (as quoted in O'Hear, 1997, p. 140). In Dave Hunt's words, "There are no morals in nature. Try to find a compassionate crow or an honest eagle—or a sympathetic hurricane" (1996, p. 41). Are those who advocate the idea that "nothing in the mind exists except as neural activity," willing to accept the consequences of their belief?

GROWING NEURONS

Every human begins life as a single fertilized cell. When the male and female gametes join to form the zygote that will grow into the fetus, it is at that very moment that the formation of a new body begins. It is the result of a **viable** male gamete joined sexually with a **viable** female gamete, which has formed a zygote that will move through a variety of important stages.

The first step in the process—which eventually will result in the highly differentiated tissues and organs that compose the body of the neonatal child—is the initial mitotic cleavage of that primal cell, the zygote. At this point, the genetic material doubles, matching copies of the chromosomes move to opposite poles, and the cell cleaves into two daughter cells. Shortly afterwards, each of these cells divides again, forming the embryo. [In humans and animals, the term "embryo" applies to any stage after cleavage but before birth (see Rudin, 1997, p. 125).]

As the cells of the embryo continue to divide, they form a cluster of cells. These divisions are accompanied by additional changes that produce a hollow, fluid-filled cavity inside the ball, which now is a one-layer-thick group of cells known as a blastula. Early on the second day after fertilization, the embryo undergoes a process known as gastrulation, in which the single-layer blastula turns into a three-layered gastrula consisting of ectoderm, mesoderm, and endoderm, surrounding a cavity known as the archenteron. Each of these layers will give rise to very specific structures. For example, the ectoderm will form the outermost layer of the skin and other structures,



A photomicrograph of a neuron found within the brain

including the sense organs, parts of the skeleton, and the nervous system. The mesoderm will form tissues associated with support, movement, transport, reproduction, and excretion (i.e., muscle, bone, cartilage, blood, heart, blood vessels, gonads, and kidneys). The endoderm will produce structures associated with breathing and digestion (including the lungs, liver, pancreas, and other digestive glands) [see Wallace, 1975, p. 187].

Within 72 hours after fertilization, the embryo will have divided a total of four times, and will consist of sixteen cells. Each cell will divide before it reaches the size of the cell that produced it; hence, the cells will become progressively smaller with each division. About twenty-two days after fertilization, the brain begins its embryonic development with the formation of the

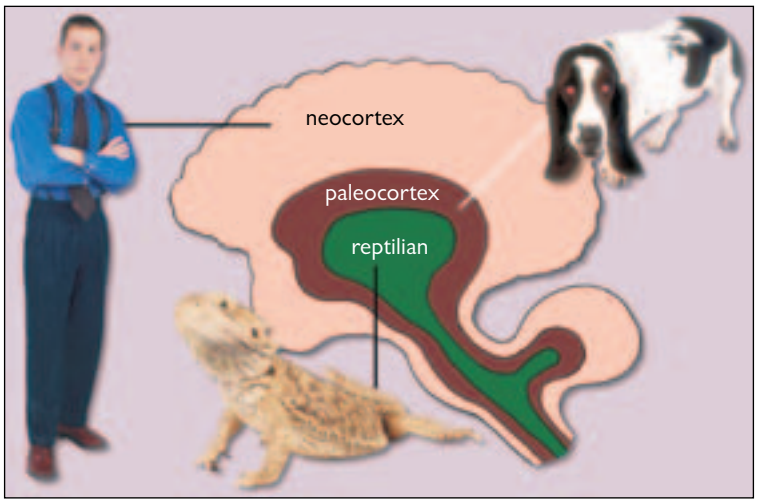
neural tube. About twenty-two days after fertilization, this hollow region begins to develop (Moore and Persaud, 1993, p. 385). The cells located within this hollow tube eventually will multiply, migrate, and become the brain and spinal cord. Once the brain is fully developed, three distinct regions can be identified: forebrain, midbrain, and hindbrain. Structures such as the cerebrum, thalamus, and hypothalamus are located within the forebrain. The midbrain is made up of the superior and inferior colliculi and the cerebral peduncles. The hindbrain is composed primarily of the cerebellum, pons, and medulla oblongata. Literally millions of neurons are housed in each of these structures, from which radiate communicating axons to other regions, giving the entire brain the unique ability to communicate with itself (thanks to a small structure known as the corpus callosum, the left and right hemispheres of the brain have the ability to communicate with one another).

While the regions and structures within the brain have been dissected exhaustively and mapped out considerably, what can those neurological pathways tell us about **function**? Can we look at the exterior surface of the brain and determine the intellectual capabilities of an individual? Evolutionists must think so; look at the "dumb," hairy, club-carrying creatures that they portray as our ancestors. These evolutionists would like to be able to look at a fossilized skull, or even an endocranial cast, and determine what "prehuman" brains were capable of doing in the distant past. However, as Terrence Deacon admitted: "Surface morphology and underlying brain functions are not directly correlated in most cases." He went on to say: "We must be careful when drawing functional interpretations from endocasts" (1999, p. 116).

Many materialists are adamant that the human brain has evolved through a layering process—with each "higher species" adding a new layer. Thus, as Ian Tattersall commented in his book, *The Monkey in the Mirror*, "as far as is known, not much if anything has been 'lost' in the course of human brain evolution. Our skulls still house the descendants of structures that eons ago governed the behavior of ancient fish, of primitive mammals, and of early primates" (2002, p. 72).

According to this "triune" brain theory, the brain evolved in three stages: the reptilian brain, followed by the paleocortex, and then the neocortex. Thus, the innermost portion of our brain is said to be the reptilian brain—since evolutionists believe it to be the oldest and most primitive portion. It therefore would include structures such as the pons and medulla, and would handle many of the autonomic tasks needed for everyday survival (e.g., breathing) [see figure below].

Evolutionists suggest that this portion of our brain has remained essentially unchanged by evolution, and that we therefore share it with all animals that possess a backbone. The next "layer" is said to be the mammalian brain or the paleocortex, which is alleged to have arisen when mammals evolved from reptiles. It would include structures such as the amygdala and hypothalamus. Then, on top of this, evolutionists claim we have added another layer—the neocortex (or human brain), which allows humans to handle logic. This new layer is said to "envelop" the other layers in gray matter, and amounts to 85% of the human brain mass. William Poundstone, in his biography of Carl Sagan, observed that even Dr. Sagan propagated this myth. Poundstone noted: "His extended discussion of the triune brain implicitly endorses it as (at least) an interesting idea. That was what some neurologists found objectionable. 'It's dismaying for people like us,' complained Boyd Campbell of the Walter Reed Army Medical Center, 'to see Sagan come and swallow all that stuff, write *The Dragons of Eden*, and get a Pulitzer Prize for it' " (1999, p. 254, parenthetical item in orig.). Dismaying indeed. As James Trefil pointed out, this way of thinking is "completely wrong."



Schematic of the evolutionary "triune" brain theory, showing the reptilian, paleocortex, and neocortex. According to evolutionists, however, this theory has been shown to be "completely wrong."

Unfortunately, this understanding of the brain has led to a rather oversimplified notion of brain function in some parts of the popular press—in which the brain is seen as a set of successive overlays. At the bottom (the brain stem and diencephalons) is a kind of primitive, reptilian brain shared with all animals, with progressive overlying refinements added until we get to the cerebral cortex, which reflects the highest brain functions. In its extreme form, this view presents the idea of the brain as a kind of sedimentary structure, like the stratifications of the Grand Canyon. Each new layer adds a new function, while underlying layers stay more or less the same. This is another of those concepts that the French call a *fausse idée claire*. **It's simple, elegant, clear, and completely wrong** (1997, p. 75, parenthetical item in orig., emp. added).

And yet the textbooks still show a progression through fish, amphibians, reptiles, and mammals. This theory of how the brain evolved in layers has suffered the same fate as that of a soufflé when the oven door is slammed—it has fallen flat.

TWELVE CRANIAL NERVES

We all have experienced the unpleasantness of sitting in front of a physician with our tongue outstretched, saying "Ah," while the doctor gags us with a wooden tongue depressor. However unpleasant this dreadful routine may be, it does have a purpose. By having you open your mouth, protrude your tongue, vocalize the word "Ah," and confirm an intact gag reflex, doctors are able, not only to look at the back of your throat, but also to assess many of your cranial nerves. Humans are born with twelve pairs of these special nerves, each performing a different function, and each going to a different location within the body.

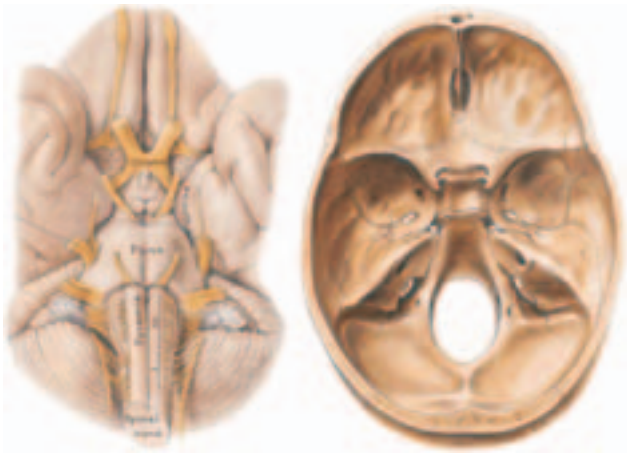
Unlike nerves that originate from your spinal cord, cranial nerves drop directly out of the brain and then proceed to their target organs. Remember, however, that your brain is completely encased in bone—your skull. So, exactly how do these twelve cranial nerves get to where they need to go? The answer is that they travel through well-placed foramina or "holes." Each pair of nerves has a specific "hole" through which it descends in order to reach a target such as the eye (optic nerve) or the heart (vagus

nerve). If you were to take a skull and pour water where the brain normally would be sitting, you soon would notice water coming out of several different holes. These holes allow the cranial nerves to travel from the brain to their target organs. But ask yourself this question: How did the holes get there? Did they evolve, too? Did these cranial nerves simply "evolve" out of the brain, and then "wait around" until holes evolved in the skull? And let's not make a small issue out of these tiny holes: the brain is constantly bathed in cerebrospinal fluid—a fluid that you do not want "leaking out" of the cranium. The formation of the holes and the dural layers that prevent this "leakage" definitely point to an intelligent Designer.

THE BRAIN VERSUS A COMPUTER

Walk into any office, hospital, or grocery store, and you will find yourself in the presence of computers. Computers have become an integral part of our everyday lives—they even played a role in getting this series of articles to you. But most intelligent individuals will agree that computers did not arrive on this planet as a result of time, natural law, and chance. Computers are designed and manufactured, and they constantly are being improved to increase their speed and capabilities. But the computer fails miserably in comparison to the human brain. When is the last time a computer grabbed a pencil to compose a sonnet, a short story, or a poem? How many computers are capable of taking a piece of wood, fashioning it in the shape of a violin, and then sitting down to play Barber's *Adagio for Strings*? And yet, evolutionists insist that the human brain—an object far more complex, and with far more capabilities than a computer—"evolved" in order to provide us with traits such as memories, emotions, the ability to reason, and the ability to talk. Other individuals like to "simplify" the human brain to the level of modern-day computers. They rationalize that, like computers, the human brain can rapidly process, store, and recall bits of information. Also, some scientific investigators compare neuronal connections to the wiring found within computers. However, the inner workings of a computer inevitably can be reduced to one thing—electronics. The basic function of computers always involves the movement of an electrical charge in a semiconductor. Contrariwise, the brain operates purely on electrochemical reactions. The transmission of nerve signals involves specific chemicals known as neurotransmitters. Once a neuron has been caused to fire, it moves these neurotransmitters into the tiny space between itself and its neighboring neurons (at the synapse), in order to stimulate them.

Additionally we know that the human brain can reason and think—i.e., we possess self-awareness. Computers have an ability to carry out multiple tasks, and they can even carry out complex processes—but not without the programming and instruction they receive from humans. Additionally, computers do not possess the ability to reason. When asked to translate into Russian the sentence—"the spirit is willing but the flesh is weak"—one computer came up with words that meant "the vodka is fine, but the meat is tasteless" (Allan, 1989, p. 68)—which is a far cry from the original meaning. Nor are computers self-aware. In comparing a modern-day computer to the awesome power of the human brain, astrophysicist Robert Jastrow admitted: "The machine would be a prodigious artificial intelligence, but it would be only a clumsy imitation of the human brain" (1981, p. 143).



Superficial view of cranial nerves and the interior base of the skull demonstrating the various formina. LifeART image copyright (2003) Lippincott Williams & Wilkins. All rights reserved. Used by permission.

It has been estimated that if we learned something new every second of our lives, it would take three million years to exhaust the capacity of the human brain (Weiss, 1990, p. 103). Plainly put, the brain is not just an advanced computer. All those convolutions and neuronal networks are the result of an intelligent Creator. If we are able to rationalize that a computer found in the middle of the Sahara Desert did not just "happen" by random chance, then why are so many willing to believe that a far more complex human brain occurred in such a fashion?

CONCLUSION

Neuroscientists already have gone, to use the Star Trek mantra, "where no one has gone before." Scientists now possess the ability to record the neurological activity from a single neuron. Using ultrafine microelectrodes, we can proceed down

through the brain's cortex, and patch-clamp neurons in order to determine specifically what ionic changes are occurring across the neuronal membranes. We have the ability to use tracer dyes to detect where a nerve sends a specific signal. Entire maps have been made that demonstrate the neurological pathways of specific types of neurons. We have tremendous hope that new areas of research, such as neuronal stem cells and nerve growth factors, will relieve or cure some of the neurological diseases that exist today. But science is far from understanding and comprehending the complexity of the brain. In fact, the brain remains a puzzle with far more pieces missing than have been properly set in place to complete the puzzle.

Upon hearing of the death of a child, a mother will begin to weep uncontrollably. What actually caused the tears to flow down her face? Where does she hold those treasured memories of her offspring? Some scientists would have us believe that those tears are merely a product of organic evolution, and that through time, we as humans "naturally selected" for them. But why? Man can reason, laugh, cry, and even worship. Why would we selectively want to cry at the loss of a loved one? Or why would our fleshly "brain" go to great lengths to worship and praise something it has never seen—unless we are more than mere matter? Evolutionist Steven Pinker wrestled with this point in his book, *How the Mind Works*.

> How does religion fit into a mind that one might have thought was designed to reject the palpably not true? The common answer—that people take comfort in the thought of a benevolent Shepherd, a universal plan, or an afterlife—is unsatisfying, because it only raises the question of why a mind would evolve to find comfort in beliefs it can plainly see are false. A freezing person finds no comfort in believing he is warm; a person face-to-face with a lion is not put at ease by the conviction that it is a rabbit (1997a, pp. 554-555).

The precision and complexity of our brain, and the manner in which it is able to interact with our mind, clearly point to an intelligent Designer. Writing in the *Bulletin of Atomic Scientists*, Roger Sperry, a psychologist at the California Institute of Technology, observed:

> Before science, man used to think himself a free agent possessing free will. Science gives us, instead, causal determinism wherein every act is seen to follow inevitably from preceding patterns of brain excitation. Where we used to see purpose and meaning in human behavior, science now shows us a complex bio-physical machine composed entirely of material elements, all of which obey inexorably the universal laws of physics and chemistry.... I find that my own conceptual working model of the brain leads to inferences that are in direct disagreement with many of the foregoing; especially I must take issue with that whole general materialistic-reductionist conception of human nature and mind that seems to emerge from the currently prevailing objective analytic approach in the brain-behaviour sciences. When we are led to favour the implications of modern materialism in opposition to older, more idealistic values in these and related matters, **I suspect that science may have sold society and itself a somewhat questionable bill of goods** (1966, pp. 2-3, emp. added).

We suspect so, too.

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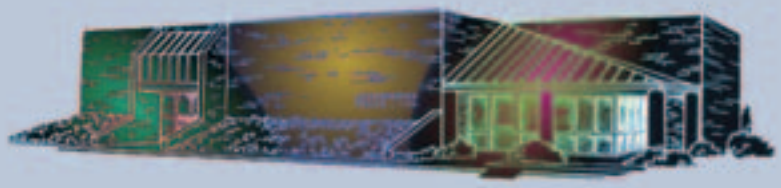
NOTE FROM THE EDITOR



"TUNE IN"—ANOTHER EXCITING ANNOUNCEMENT FROM APOLOGETICS PRESS!

Late in December of each year, my professional staff and I "hole up" for a couple of days in our annual year-end meeting, during which we evaluate our efforts for the year that is coming to an end, offer up constructive criticism on how we might do better, and set forth our work strategy for the upcoming new year. We engage in brainstorming sessions, consider ideas and suggestions that have been proposed by others (who, quite frequently, are readers of *R&R*!), set specific goals, and lock in place timetables for the achievement of each of our objectives. Through the years, this has proved to be some of the most valuable time we spend together, because it helps us accurately assess what we have accomplished, and see more clearly what we still have left to do.

One of the goals that my staff and I set for 2004 was to take a much more active role in multimedia. It is our hope that as we strive to "get the message out" by using various forms of media (the Internet, radio, television, etc.), we will be able to reach many more souls with the Truth.

That said, it gives me great pleasure to announce that we already have completed "stage one" in what will be a multi-stage approach to placing a number of our products into multimedia formats during 2004. As of January 31 (roughly one month after we set forth the goal to do so!), we have **17 one-minute radio spots** prepared for use by those who would like to employ radio as their means of "getting the word out" about the legitimacy of Christianity, the accuracy of the Bible as God's inspired Word, the literal nature of the Genesis account of Creation, the deity of Christ, etc. Among the topics discussed in the one-minute spots are: scientific foreknowledge contained in the Bible, the age of the Earth, cloning, stem-cell research, dinosaurs and the Creation account, the inspiration of the Bible, the degradation of morals in society, the threat of theistic evolution, etc.

Here is how the radio spots work. Each one-minute spot asks a penetrating question, deals with a current "hot" topic, or raises a point well worth considering—the goal being to get the listener to examine the evidence concerning the specific topic under discussion.

With that in mind, as the spot draws to a close, the listener is directed to the Internet site, "**www.examinetheevidence.com.**" When a person types that URL into his browser, he (or she) is directed to a special page "(Examine the Evidence") on the Apologetics Web site. Once there, the viewer can: (a) click on any of the radio spots to listen once again to the spot that brought him to the Web site (or listen to any of the other radio spots); and (b) find a minimum of three different articles (one in-depth article, plus two shorter articles) that deal with the subject discussed in the radio spot.

While on our Web site, a person also can navigate to other sections of the site in order to take advantage of all the other (free!) material the site has to offer (and that is a lot!). An individual can view past issues of *R&R*, find answers to alleged Bible discrepancies, read "in the news" items that may be of interest, or even study from any of our three different sets of Christian evidences correspondence courses—all because of a one-minute-long radio spot!

Each spot has been professionally recorded and digitized, and placed on a CD, which (are you ready for this?) we will be happy to provide **completely free of charge**! We encourage congregations that employ radio spots to consider using one of these new spots (which announce our toll-free number—800/234-8558) so that people can request free materials at no cost to the congregation, while at the same time being taught the Truth.

Bert Thompson