

THE INTRICATE AND MASTERFUL DESIGN OF THE HUMAN EAR

Aaron R. Morrison, M.D.

[EDITOR'S NOTE: One of the strengths of Apologetics Press for the past 28 years has been the way A.P. publications have reflected an accurate blending of science and Bible. Since the Creator produced both the Bible and the physical Universe, no contradiction between the two is possible. Yet much of the "science" being alleged today is pseudo-science rooted in evolutionary theory. And much of the "religion" being perpetrated today is pseudo-religion rooted in human theology. In reality, true science is in complete harmony with a correct interpretation of the teaching of the Bible.

Through all these years, A.P. has maintained its longstanding tradition of providing the public with cutting edge analysis of the central scientific and religious issues of the day. In that spirit, we are expanding our science department by building a team of scientists who are academically credentialed in their respective fields of scientific expertise. They are well-qualified to address matters of science as they relate to the overall creation/evolution controversy. Articles by these auxiliary staff scientists will be appearing both in *Reason & Revelation* as well as on the A.P. Web site.

With this issue of *R&R*, we provide our readers with the first of these articles written by one of our scientific writers. Dr. Morrison holds an M.D. from the University of Tennessee College of Medicine and is completing his residency in Otolaryngology/Head and Neck Surgery.]

Have you ever escaped the haste of society and taken refuge on an ocean beach, lakeshore, or riverbank, and listened to the calming sound of the waves as they collapsed upon the

shore? Have you been amazed at the powerful crash of thunder overhead during a thunderstorm? Do you enjoy listening to the peaceful and varied songs of nature's winged vocalists? Do you ever take solace hearing the comforting words of a loving friend or family member?

The human hearing mechanism is tremendously complex and wonderfully designed. A brief look at the structure and function of the ear will, at a minimum, lead one to a greater appreciation for the complexity of the ear. More important, it should lead one to a greater appreciation for the One who is responsible for the intelligent design of the ear. For those who contend that organic evolution is responsible for the development of the human body (and nature in general), a closer look at this organ system ought to provoke reconsideration and an honest assessment of the impossibility of random events leading to such marvelous complexity.

The ear is divided into three parts: the external, middle, and inner divisions. The structures of the inner ear are responsible not only for sound processing, but also balance. First, let us identify the structures contained within each division of the ear; then we will examine how a sound wave travels through each portion of the ear and eventually is perceived as sound.

THE EXTERNAL EAR

The external ear is composed of the pinna (auricle), the external auditory canal (EAC), or simply ear canal, and the outer layer of the tympanic membrane (TM), also known as the eardrum. [NOTE: The TM itself is composed of three layers: the outer squamous epithelial layer, the middle layer of tough connective tissue, and the inner layer of cuboidal epithelium.]

The pinna confers an acoustical advantage of approximately 2-5 decibels (dB) in humans (see Figure 1). The EAC

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serves not only to protect the middle ear but also enhances hearing by 5-10 dB at frequencies near 2000 Hertz (Hz) which are important frequencies for un-



Figure 1

derstanding human speech. The outer third of the EAC is surrounded by cartilage while the inner two-thirds are surrounded by bone.

THE MIDDLE EAR

The middle ear is composed of the middle and inner layers of the TM, the ossicles, also known as the malleus (or hammer), incus (or anvil), and stapes (or stirrup), the smallest bones in the human body (see Figure 2), the two smallest muscles in the body, the stapedius and tensor tympani, and the opening to the Eustachian tube.

Together, the middle ear structures function as a transformer of sound energy from the air (in the EAC) to the fluids of the inner ear (cochlea). As sound waves contact the TM and create movement of

the eardrum, the ossicles (malleus, incus, and stapes) are set in motion. The malleus is connected to the TM, while the incus is connected to the malleus, and also to the stapes. The stapes, in turn, is in contact with the oval window of the cochlea (see Figure 3). The stapes is the smallest ossicle and, interestingly, is of adult size and form at birth (Lee, 2003, p. 13). The stapes' foot plate rests in the oval window of the cochlea and acts like a piston. Carefully note the beautiful design of this mechanism: as sound energy is collected over the relatively large surface area of the TM and concentrated on the small footplate of the stapes, the mechanical advantage results in an increased auditory sensitivity of approximately 24-25 decibels. An additional auditory advantage of 2-3 decibels is obtained by the lever action of the ossicles themselves,

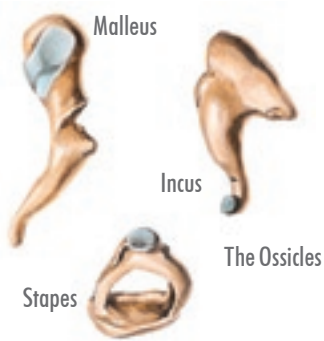


Figure 2

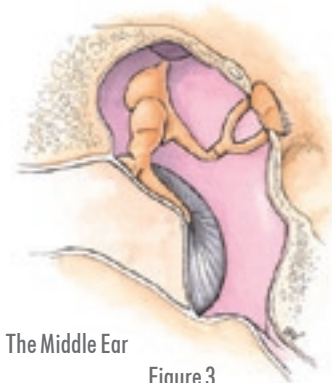


Figure 3

resulting in a total middle ear auditory advantage of approximately 27 decibels (Templer, et al., 1987, p. 21).

It is interesting to note that **the two smallest muscles in the human body** are located in the middle ear space. The smaller of these two muscles, the stapedius, is just over one millimeter in length. As its name suggests, it is attached to the stapes. What is the function of the smallest muscle in the body? When loud sounds are encountered (sounds louder than approximately 80 decibels), the stapedius contracts and holds the ossicular chain in a more rigid position in order to prevent excessive movement of the stapes (Calhoun, et al., 2001, p. 1624). This serves to buffer the intensity of sound wave transmission to the cochlea. If an individual develops paralysis of the stapedius, this buffering mechanism is lost and loud noises become deafening.

The stapedius plays a very important role in preserving our hearing. The "hair cells" in the cochlea (discussed below) are highly sensitive and repeated exposure to loud noises over time destroys hair cell function and is irreversible. Hearing loss is the unfortunate consequence of hair cell destruction. This is why otolaryngologists encourage everyone to use hearing protection when they are working around loud machinery or taking part in recreational activities that result in significant noise exposure (e.g., gunfire).

The second smallest muscle in the human body is the tensor tympani. Despite years of technical research and study, the role of this muscle is not fully understood. Among other functions, it has been credited with decreasing the amplitude of sound energy transmitted to the cochlea. However, acoustic reflex

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Editor:

Dave Miller, Ph.D.*
(*Communication, Southern Illinois University)

Associate Editor:

Kyle Butt, M.A.*
(*New Testament, Freed-Hardeman University)

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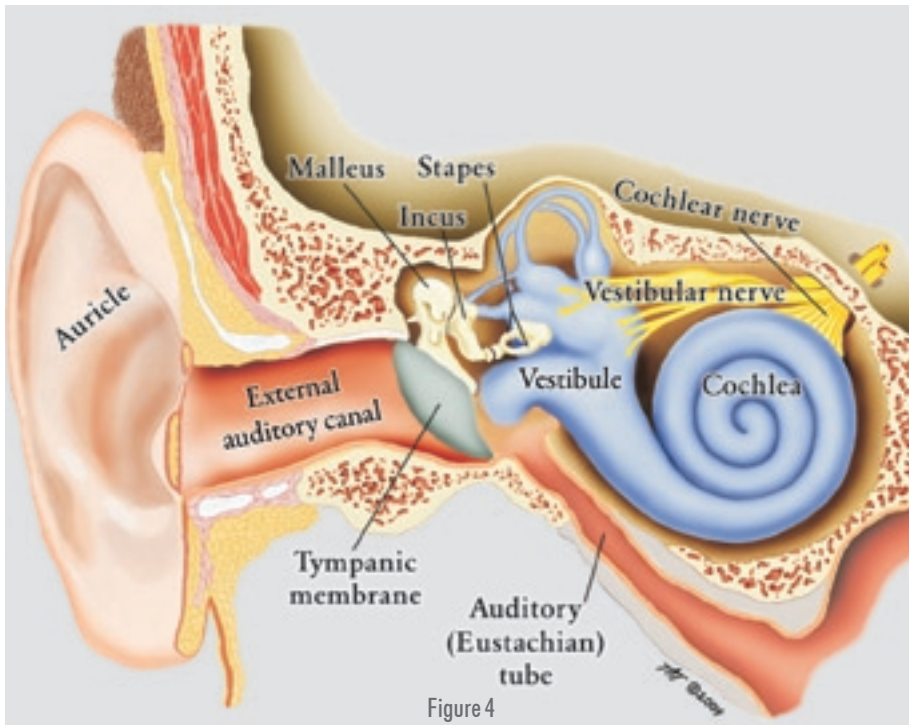


Figure 4

data has suggested that the tensor tympani does not normally respond to intense sounds (Calhoun, et al., 2001, p. 1624). The tensor tympani is connected to the malleus, the ossicle which itself is connected to the tympanic membrane. When the tensor tympani muscle contracts, it pulls on the malleus and tenses, or tightens, the tympanic membrane (hence the name, tensor tympani). This appears to dampen the vibrations of the eardrum and may indeed reduce the amount of energy carried along the ossicles to the cochlea.

The eustachian tube connects the middle ear with the nasopharynx (the area behind the nasal passages and above the oral cavity) and serves to equalize the middle ear pressure (see Figure 4). When individuals suffer from eustachian tube dysfunction (where the eustachian tube fails to open and close normally), there is development of excess negative pressure in the middle ear space. This leads to retraction of the tympanic membrane and decreased efficiency of the conductive mechanism that transmits sound from the eardrum to the cochlea (via the ossicles). The negative pressure also can lead to fluid accumulation in the middle ear space, which further impedes the conduction of sound energy. Children suffer from eustachian tube dysfunction more frequently than

adults. Consequently, many children must undergo myringotomy (incision in the tympanic membrane) and placement of pressure equalization tubes (i.e., ear tubes) to relieve the negative middle ear pressure and allow drainage of fluid that may have collected in the middle ear space.

THE INTERNAL (INNER) EAR

The **internal ear** is composed of the cochlea and the vestibular system. The vestibular system is composed of the semicircular canals, utricle, and saccule.

Cochlear Anatomy

The cochlea is shaped like a snail, having approximately $2\frac{3}{4}$ turns, and is surrounded by the hardest bone in the human body. The cochlea is composed of three fluid-filled cavities that wind around the central portion of the cochlea, known as the modiolus (See Figure 5).

These three fluid-filled cavities are known as *scalae* (from the Latin meaning “a stairway”)—the *scala vestibuli*, the *scala media*, and the *scala tympani*. The *scala vestibuli* and *scala tympani* are connected via a duct at the apex of the cochlea (the *helicotrema*). The *scala media* is suspended between the *scala ves-*

tibuli and *scala tympani*. There are two different fluids that fill the *scalae* of the cochlea: perilymph and endolymph. The perilymph is contained within the two continuous *scalae* (i.e., the *scala vestibuli* and *scala tympani*). Perilymph is very similar in composition to extracellular fluid in the human body (high sodium concentration and low potassium concentration). Endolymph is contained within the *scala media* and is similar in composition to intracellular fluid (high potassium content and low sodium content) (Pasha, 2006, p. 302).

If you could enter the *scala vestibuli* at the base of the cochlea (through a structure known as the oval window) and “swim” upward through the perilymph in a curving fashion to the apex of the cochlea, you would cross over to the *scala tympani* at the *helicotrema* and follow the curve of the cochlea downhill through perilymph, exiting through a structure known as the round window (which is covered by a thin membrane). With this understanding of cochlear anatomy, perhaps it will be easier to appreciate the path of the fluid wave that passes through the cochlea when a sound wave contacts the TM and is conducted to the oval window via the ossicles. The stapes footplate (the oval-shaped bony portion of the stapes) rests in the oval window. The movement of the ossicles and piston-like action of the stapes creates a fluid wave in the *scala vestibuli*. The fluid wave then travels through the *scala media* (which contains endolymph and is suspended between the *scala vestibuli*



Figure 5

and scala tympani) and then to the scala tympani. Further discussion of cochlear anatomy is necessary to understand what happens next.

The scala media is bounded by Reissner's membrane (upper border) and the basilar membrane (lower border). The organ of Corti (the sensory end organ for hearing) rests on the basilar membrane. The organ of Corti has special "hair cells" that rise to terminate in (or near) the tectorial membrane. There are approximately 30,000 hair cells in the cochlea (Whitehead, 2006). As the fluid wave causes vibration of the scala media, the motion of the hair cells leads to stimulation of nerve cells at the base of each hair cell. There are approximately 30,000 neurons (nerve cells) that connect these hair cells to the brain (Calhoun, 2001, p. 1631). This neural signal is communicated along the cochlear division of the vestibulocochlear nerve to the brain, where further processing takes place.

As the stapes moves inward and outward in the oval window (like a piston), a wave is created in the fluids of the inner ear (the perilymph and endolymph). This wave travels from the base of the cochlea to the apex. The wave ultimately leads to hair cell motion in the organ of Corti. The mechanical properties of the basilar membrane determine the distance that the wave travels toward the apex of the cochlea. The traveling wave activity for high-frequency sounds is more pronounced at the base of the cochlea, whereas wave activity at the apex of the cochlea is more pronounced with low-frequency sounds.

Thus, the cochlea is said to be tonotopically organized, i.e., because high frequency sounds correspond with the mechanical movement of the basilar membrane at the base of the cochlea and low frequency sounds are associated with movement of the basilar membrane at the apex of the cochlea (Templer, et al., 1987, p. 14). The cochlea also performs place analysis because of the spatial representation of frequency information (p. 14). Additionally, the traveling wave results in frequency information which is encoded by the rate of neuron (nerve cell) firing. Individual nerve cells may fire at rates up to (and beyond) **1000 times per**

second (p. 14). It is interesting to note that when single fibers of the cochlear nerve are studied, each neuron is specifically tuned to be activated with a low threshold at a characteristic frequency. Once again, the characteristic frequency of a nerve fiber is determined by the place of attachment to the cochlea, i.e, the low frequency fibers terminate in the apex of the cochlea while the high frequency fibers terminate in the base of the cochlea (p. 15). As one author has observed: "[T]he ear has the capability to encode acoustic signals on an array of neurons that carry frequency specific information. The resolving power of the cochlea enables **extraordinary discrimination among complex signals**" (p. 15, emp. added).

Note how the ear converts **sound wave energy** into **mechanical energy** as sound travels through the EAC, contacts the TM, and sets the ossicles in motion. Mechanical energy is then converted into **hydraulic energy** when the stapes creates a fluid wave in the cochlea. Finally, the hydraulic energy is converted into **electrical (neural) energy** with movement of the hair cells in the cochlea. Ultimately, this neural energy is transmitted along the vestibulocochlear nerve and interpreted by the brain as **sound**. Such sophistication and complexity simply could not have evolved.

Vestibular System

As noted earlier, the vestibular system is also contained within the internal ear. The vestibular system includes

the semicircular canals, which detect rotational acceleration and play a large role in maintaining balance (Pasha, 2006, p. 302). Also within the vestibular system are the utricle and saccule (see Figure 6), which detect linear acceleration and changes in gravity, and therefore also play a significant role in maintaining balance (p. 303). Disruptions in the function of the vestibular system can lead to debilitating symptoms of vertigo, imbalance, nausea, and vomiting.

Central Auditory System

The information collected in the cochlea and vestibule is then transmitted to the brain in the form of electrical signals (via the eighth cranial nerve, also known as the vestibulocochlear nerve). This nerve passes through the internal auditory canal, and the cochlear division of the nerve proceeds to an area in the brain known as the cochlear nucleus. The vestibular portion of the nerve travels to the vestibular nuclei.

Review of the pathways that the electrical signals navigate in the brain is beyond the scope of this article. The continued complexity of the signal transduction and processing in the brain is a separate study that further illustrates the amazing design in the hearing mechanism. The brain processes and interprets the information from the **cochlear** nerve, enabling us to understand speech, enjoy the relaxing sound of the waves on the seashore, or recognize warning signals such as a siren or fire alarm. The brain interprets the information that is trans-

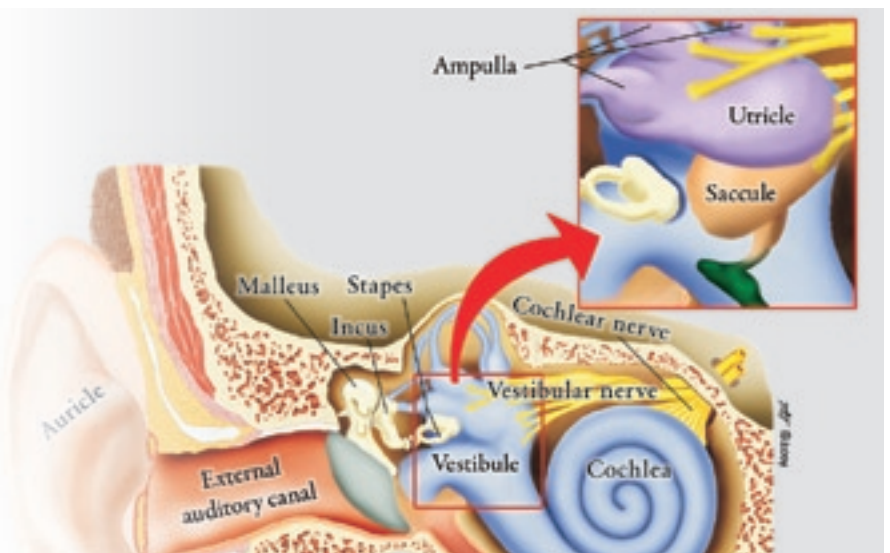


Figure 6

Evolution and the Blame Game

Eric Lyons, M.Min.

Adam blamed Eve (Genesis 3:12). Eve blamed Satan (3:13). The Israelites blamed Moses (Exodus 14:10-12). Saul blamed the Israelites (1 Samuel 15:15). Ahab blamed Elijah (1 Kings 18:17-18). Since the beginning of time, man has sought to shun personal responsibility by shifting blame elsewhere for his sinful actions. Children pick up on this early in life as they frequently look to siblings for a way out of trouble. “Ricky made me do it....” “Rachel started it....” “Lance dared me to....” Normally, discussions on shifting culpability to others are negative in nature. Blameworthy individuals who refuse to admit their wrongdoings are acting sinfully and irresponsibly (1 John 1:8-10; cf. 2 Samuel 12:13). Among atheistic evolutionists, however, the blameworthy become the blameless; anything and everything can be chocked up to “the overpowering forces of evolutionary genes.”

In 2000, Randy Thornhill and Craig Palmer authored *A Natural History of Rape* in which they alleged that “[e]volutionary theory applies to rape, as it does to other areas of human affairs, on both logical and evidentiary grounds. There is no legitimate scientific reason not to apply evolutionary or ultimate hypotheses to rape” (p. 55). They continued: “Human rape arises from men’s **evolved machinery** for obtaining a high number of mates in an environment where females choose mates” (p. 190, emp. added). Although Thornhill and Palmer “would like to see rape eradicated from human life” (p. xi), they are forced to conclude, in essence, that nothing is ultimately **wrong** with the practice (see Butt, 2005 for more discussion).

Fast forward six years to the 2006 meeting of the European Society of Human Reproduction and Embryology in Prague, Czech Republic. According to the society’s official Web site, evolutionist Dr. Laurence Shaw argued that teenage sexual promiscuity and subsequent pregnancy should be accepted as normal since they are simply “consequences of evolution” (“Teenage....,” 2006). He stated:

[B]efore we condemn our teenagers for having sex behind the bike sheds and becoming pregnant, we should remember that this is a natural response by these girls to their rising fertility levels. Society may ‘tut, tut’ about them, but **their actions are part of an evolutionary process that goes back nearly two million years**; whilst their behaviour may not fit with Western society’s expectations, it is perhaps useful to consider it in the wider context (“Teenage....,” emp. added).

Allegedly, when pre-marital sexual relations and teenage pregnancy are examined in view of the “wider context,” namely, our alleged evolutionary heritage, they are perceived simply as natural, normal, and acceptable. That is, pre-marital sex is not wrong, and teenage pregnancy is not a blight on society.

Dr. Shaw’s comments are just another example of how destructive evolutionary thought really is when taken to its logical conclusion. If there is no God, and man evolved from slime, then there are no universal, timeless, moral truths. Right and wrong exist only in a world where an infinite, eternal, Almighty God exists. If our alleged mammalian, reptilian, and amphibian ancestors did not restrain themselves sexually, why should we? If our supposed ape-like ancestors could mate whenever, wherever, and with whomever, without feeling a twinge of guilt, so can we! What’s more, to criticize individuals for acting a certain way (i.e., engaging in pre-marital sexual relations) is intolerable and reveals a lack of intelligence. Dr. Shaw even mocked those who “condemn” sexual promiscuity and teenage pregnancy by saying they “tut, tut” about something without sufficient awareness of the past.

Although Christians increasingly are viewed as unenlightened and shallow minded, they actually are the ones who understand where irrational, atheistic evolutionary thought ultimately leads. If sexual relations outside of marriage are merely “natural” and “part of an evolutionary process,” then what about the many other things man may desire to do? It may be natural for a person to covet (and take) what another possess. Stronger animals are often seen taking what weaker animals possess. Should we tolerate theft, reasoning that our “actions are part of an evolutionary process” that goes back millions of years? It may be “natural” for people to have a desire to kill someone for making them upset (e.g., being cut off by someone in traffic). Since our animal ancestors killed each other, and since animals today continue to kill, why shouldn’t we? Can you imagine if such argumentation was used in theft and murder trials: “I’m not guilty because my animal instincts made me do it”? By taking atheistic evolution to its logical conclusion, one can see how repulsive and destructive the philosophy really is. Evolution naturally leads to lawlessness and social anarchy.

Since sin entered the world, man has compounded the error of his ways by seeking to cir-

(continued on 8-R)



cumvent the consequences of his actions. Sadly, evolutionists have taken the blame game to a whole new level. If we can legitimately blame sexual promiscuity, teenage pregnancy, and rape on our animal heritage, how could we ever be held responsible for anything? Perhaps this “freedom” from responsibility is the major attraction to evolutionary philosophy: “Accept our naturalistic explanation of things and you will never have to feel guilty for anything again.”

In reality, sin can never be cured by shifting culpability to anything or anyone other than self. It was not until King David owned up to his sin that the Lord forgave him (2 Samuel 12:13). Only when Peter humbled himself and confessed his sin was he fit to fish for men (Luke 5:8-11). Even Christians must continually confess their sins in order to be cleansed of them by the blood of Jesus (1 John 1:8-10). Truly, a

guiltless life begins, not in the acceptance of a temporary, godless, lawless, hedonistic philosophy like atheistic evolution, but in the submission to Almighty God, Who graciously offers guilt-free, eternal life through His Son (John 3:16; Revelation 22:17).

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IN THE NEWS

Astronomers from more than 30 research institutions in 15 countries are working together to select a site for a giant telescope that they hope will read TV or radio signals from alien civilizations. Slated to cost one billion dollars, the Square Kilometer Array, or SKA, would be the world’s most powerful radio telescope. Speaking at a conference of the International Society for Optical Engineering in Orlando, Florida, project astronomers said they hope to find “immediate and direct evidence of life elsewhere in the Universe” (“Sites Under...,” 2006).

Despite this bold venture, the scientists admit that “such a search would have distinct limitations, to be sure.” “Distinct limitations”? Like what? For one, the scientists “aren’t sure how to recognize such signals, if they do turn up. The hope is that the signals would consist of **organized patterns suggestive of intelligence**, and not attributable to any known celestial sources” (“Sites Under...,” 2006, emp. added). Wait a minute. Evolutionary scientists are renowned for their condescending ridicule of creationists because those who believe in God assert that evidence of intelligent design in the Universe is proof of an Intelligent Designer. No, the evolutionists counter, the Universe got here by accident through random chance, mindless trial and error, and the blind, mechanistic forces of nature. They maintain that life on Earth owes its ultimate origin to dead, non-purposive, unconscious, non-intelligent mat-

ter. Yet they are perfectly willing to squander one billion dollars on a telescope with the speculative idea that solid proof—hard evidence—for the existence of alien life would reside in otherwise undecipherable radio or TV signals that convey “organized patterns suggestive of intelligence.” [NOTE: One is reminded of NASA’s Viking mission to Mars in the mid-seventies in which scientists eagerly declared evidence for life on Mars based on initial photos that appeared to show a “B” or even a face on a rock (cf. “Life’ on Mars,” 2006; Warren and Flew, 1976, pp. 112, 156). Such judgments soon were deemed premature and incorrect.] Atheistic evolutionists want it both ways: organized patterns prove the existence of life and organized patterns do not prove the existence of God. Philosophers and logicians refer to such duplicitous posturing as irrational and “logical contradiction.” Apparently, evolutionists call it “science.”

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Dave Miller



mitted via the **vestibular** nerve, allowing the body to maintain balance. As long as the vestibular system is free of any pathological condition, our body's inner ear recognizes rotational and linear acceleration as well as the effects of gravity and processes this information in a seamless manner, allowing us to move about without giving a thought to balance. Truly,

[t]he human ear is a rather wondrous instrument. It is composed of tens of thousands of component parts, can work quite flawlessly from well before we are born to more than a century of age, and is capable of performing extremely sophisticated auditory tasks. And, it works 24 hours a day! (Whitehead, 2006).

CONCLUSION

This brief examination of the marvelous mechanism of hearing should lead to a greater appreciation for our Creator as well as His creation, and serve as a reminder that our spiritual "ears" must be attuned to hearing the Lord's teaching and instruction (Matthew 11:15; 13:9,43). Of course, those who are physically deaf can still "hear" the Lord by reading and understanding the inspired Scriptures. In Proverbs 18:15, the author writes: "The heart of the prudent acquires knowledge, and the ear of the wise seeks knowledge." Jesus made it clear that if we suffer from

spiritual hearing loss, we will be unable to enjoy the blessings that are found in Him: "For the hearts of this people have grown dull. **Their ears are hard of hearing**, and their eyes they have closed...lest they should understand with their hearts and turn, so that I should heal them" (Matthew 13:15, emp. added). Jesus went on to say: "But blessed are your eyes for they see, and your ears for they hear; for assuredly, I say to you that many prophets and righteous men desired to see what you see, and did not see it, and to hear what you hear, and did not hear it" (Matthew 13:16-17).

The apostle Paul also discussed the topic of hearing. He warned Timothy of individuals who desire to hear false doctrine rather than the sound teaching of our Lord and Savior: "For the time will come when they will not endure sound doctrine, but according to their own desires, because they have itching ears, they will heap up for themselves teachers; and they will turn their ears away from the truth, and be turned aside to fables" (2 Timothy 4:3-4). We must attune our ears to listen intently to God's Word alone and not be turned aside to the teachings or creeds of man. In doing so, we have the reassurance that we can overcome and partake of the tree of life: "He who has an ear, let him hear what the Spirit says to the churches. To him who overcomes, I will give to eat from the tree of

life, which is in the midst of the Paradise of God" (Revelation 2:7).

Certainly, the wonderful structure, function, and complexity of the human ear is evidence of the Mighty Creator, the Designer not only of the ear, but the heavens and the Earth as well ("God, who made the world and everything in it...," Acts 17:24). David certainly appreciated God's design of the human body when he declared: "I will praise You, for I am fearfully and wonderfully made" (Psalm 139:14). Indeed, "[i]f we had no other piece of evidence in the Universe to study, the human ear would be sufficient proof of the existence of the Creator" (Miller, 2006, 12:91).

While it is interesting to learn of the intricate detail and divine design used in creating the human ear, infinitely more wonderful is the knowledge (through the Scriptures) that the **Creator's ear** is open to the petitions of His children: "For the eyes of the Lord are on the righteous, and His ears are open to their prayers; but the face of the Lord is against those who do evil" (1 Peter 3:12). May we stand in awe of the matchless Creator, the Redeemer of mankind, and **listen** to His inspired Word, knowing that **His ears** are open to our prayers if we walk according to His will.

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SPEAKING SCHEDULES

Kyle Butt

February 2	Pigeon Forge, TN	(256) 764-9642
February 16-18	Pigeon Forge, TN	(423) 476-8941

Eric Lyons

February 4	Clarksburg, TN	(731) 986-3130
February 6	Henderson, TN	(731) 989-6622
March 5-8	Benton, KY	(270) 527-1271

Dave Miller

February 4,11,18,25	Columbiana, AL	(205) 669-0244
February 16	Montgomery, AL	(334) 277-4327
March 23-25	El Cajon, CA	(619) 442-1938

Comical Contentions on the Ear by Evolutionists

Dave Miller, Ph.D.

Humans are proficient masters of self-deception. Many tend to believe what they want to believe, and see what they want to see. Especially when it comes to our own actions, we generally believe and defend those ideas that enable us to behave the way we choose. “I desire to engage in same-sex relations—so homosexuality is genetic;” “I don’t want a child—so a ‘fetus’ is not a human and abortion is okay;” “I want another woman—so God will accept my divorce.”

The essential contention of evolution is that the God of the Bible does not exist and, therefore, the Universe and all life forms came about gradually by blind, non-intelligent, non-purposive, mechanistic forces over millions and billions of years. Hence, all value—including moral value—is merely and strictly the product of subjective human inclination. Right and wrong are purely relative. Such thinking is attractive and convenient to some, since it allows man to think and act as he pleases, without any interference from a higher Power.

Yet, with all their intellectual prowess, academic attainment, and sophisticated scientific jargon, the evolutionists frequently express themselves in such a way that the honest person of average intelligence can see the foolishness of their theory. Indeed, the theory of evolution is downright laughable. Take, for instance, the explanation advanced for the evolution of the human ear. Renowned evolutionist Richard Dawkins is typical of the comical contention of evolutionists that the human ear evolved over millions of years by means of the chance, mindless, naturalistic forces of evolution: “If you think about the evolution of a **really complex** adaptation like an eye or an ear, then precisely **because it cannot have come about as a single chance step it had to have come about as a gradual improvement**” (see Brown, 2004, emp. added). It could not have just happened on its own—“a single chance step.” So with what options are we left? An all-powerful, transcendent God? Absolutely not—not even an option! So it just had to have come about gradually by multiple chance steps. A single chance step? Impossible.

But multiple chance steps? Certainly! Rational, or comical gobbledygook?

Consider the claim by two evolutionists at Uppsala University in Sweden: “The structure that became the sound-conducting middle ear of land animals began as a tube that permitted ancient shallow-water fish to take an occasional breath of air out of the top of their heads” (Brown, 2006). Sounds reasonable—the nose became the ear. Why not? Given enough time, maybe your nose will do the same.

Then we have an article, appearing in a Turkish newspaper, by evolutionist Veyssel Atayman claiming that “[o]ur hearing organ, the ear, emerged as a result of the evolution of the endoderm and exoderm layers, which we call the skin. One proof of this is that **we feel low sounds in the skin of our stomachs**” (1999, emp. added). The BBC televised a special on “The Human Body” advancing the notion that the common evolutionary ancestry of man and fish is seen in the evolution of the human ear from the bones associated with the gills of fish (“Evolutionary Tell...,” 2002).

And we mustn’t omit the shrewd observation by Michael Benton who holds the Chair in Vertebrate Paleontology at the University of Bristol, England: “At a certain point, in the Late Triassic, **the reptilian jaw joint had shifted function**. We can still detect the legacy of this astonishing transition: **when you chew a hamburger, you can hear your jaw movements deep inside your ears**” (2001, emp. added). Did you catch that? You hear yourself chewing because parts of your hearing structure evolved from reptilian jawbones.

Let’s recap: the human ear evolved from a breathing tube. No, it was from skin layers connected to the stomach. No, it was from fish gills. Wait a minute, actually your ear came from a jaw. It all makes perfect sense—if you’ve been educated beyond your intelligence. Observe that evolutionists not only disagree among themselves on such matters as the evolution of the ear, the sheer speculation they advance consists of very specific scenarios in which they describe imaginary events

as if they really happened. Even then, often their conjuring is laced with very telling admissions that concede their lack of substantive evidence. For example, consider the admissions that riddle an article titled, “The Evolution of the Human Ear,” by the “Senior House Officer” at the Royal Sussex County Hospital in Brighton, England: “Much of the story of the evolution of the human ear is **controversial**” (Bhutta, 2004, 13[5]:50, emp. added); “These early steps are **conjecture**” (13[5]:50, emp. added); “Evolution is a **poor method of design**” (13[5]:50, emp. added); “We actually **know little** of the early amphibian ear” (13[5]:51, emp. added); “Why this change occurred...is **a matter of debate**” (13[5]:51, emp. added). Observe: the evolution of the ear is controversial, conjecture, and a matter of debate. Yet we are supposed to be assured that it nevertheless happened.

This is self-delusion—not science. The explanation of the Bible is sensible and rational: “The hearing ear and the seeing eye, the Lord has made them both” (Proverbs 20:12).

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Indirect Observation

Kyle Butt, M.A.

The idea often is presented that the creation of the Universe is not “scientific” because a supernatural Creator cannot be tested using present scientific instruments and procedures. Eugenie Scott, the Executive Director of the National Center for Science Education, avid proponent of evolution and outspoken opponent of creation, has expressed precisely such sentiments: “The ultimate statement of creationism—that the present universe came about as the result of the action or actions of a divine Creator—is thus outside the abilities of science to test” (2004, p. 19). Presumably, because God cannot be “controlled” in an experiment, and because He is a supernatural, non-physical Being, then any information that involves such a God cannot be deemed “scientific.”

It is interesting to note, however, that Scott makes some very pertinent admissions when it comes to the ways in which scientists gather data and formulate their theories. In her discussion of data collection, she noted that some scientific data are gathered from **indirect** observation. She stated:

In some fields, not only is it impossible to directly control the variables, but the phenomena themselves **may not be directly observable**. A research design known as *indirect experimentation* is often utilized in such fields. Explanations can be tested **even if the phenomena being studied are too far away**, too small, or too far back in time to be observed directly. For example, giant planets recently have been discovered orbiting distant stars—though we cannot directly observe them (2004, p. 6, emp. added, italics in orig.).

She proceeded to suggest that because we know that large planets would have quite a large gravitational pull, and because we see the distant stars “wobble” like they have been pulled by planet gravitation, then we can know that “these planetary giants do exist,” and even estimate their sizes.

Let us, then, analyze what Ms. Scott is suggesting: (1) there are some things in this world that we cannot observe directly; (2) we cannot do tests or experiments on the actual object; (3) nor can

we see, taste, hear, smell, or touch them. But we can **know** that they exist due to the fact that we can see their effects on things.

One reason Scott is forced to admit the legitimacy of indirect observation is the fact that evolution cannot be tested directly. She admits: “Indeed, no paleontologist has ever observed one species evolving into another, but as we have seen, a theory can be scientific even if its phenomena are not directly observable” (2004, p. 14). According to Scott, we cannot observe evolution in action, per se, but we can look at the effects it has left in the fossil record and other areas and call it a “scientific” discipline.

It may come as quite a surprise to the reader that Ms. Scott’s explanation of indirect experimentation is almost identical to the evidence given by the apostle Paul for the existence of an omnipotent Creator: “For since the creation of the world His invisible attributes are clearly seen, being understood by the things which are made, even His eternal power and Godhead, so that they are without excuse” (Romans 1:20). Paul was simply saying that the general population cannot directly observe the Creator, and yet the effects the Creator causes in this observable Universe are so directly tied to His omnipotent abilities that those who refuse to recognize His existence are without excuse.

Can we look into this Universe and see complex biological machinery that **demand**s a superintending mind? Yes. Can we look at the qualities of matter and energy in relationship to the First and Second Laws of Thermodynamics and **know** that matter cannot be eternal and must have had a starting point? Absolutely. Is it possible to locate irreducibly complex systems in nature that could not have evolved, but must have been **designed** by an Intelligence that far surpasses any and all human intelligence? Certainly. Then just as surely as Ms. Scott recognizes that much scientific data comes from indirect observation, a rational thinker must admit the legitimacy of obtaining information about the Creator in the same way.

If we can look at phenomena that we know must be caused by a mind, such as computers, cars, and houses, then we can study the characteristics that show they were caused by a mind and look for those same characteristics in nature. When we do, we find abundant evidence that a Mind must have been involved in the Universe to bring about the physical effects that we observe directly. In truth, Creation is the only rational, scientific explanation for the material Universe.

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NASA, ESA and the Hubble Heritage Team (STScI/AURA)

NOTE FROM THE EDITOR

APOLOGETICS
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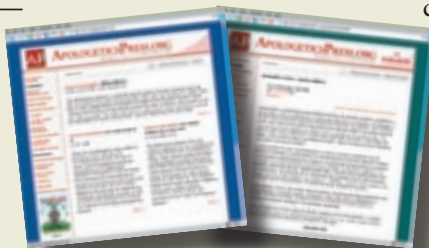
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