

A Scientific and Biblical Response To:

“Up from the Apes. Remarkable New Evidence Is Filling in the Story of How We Became Human”

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Introduction

The recent decision of the Kansas State School Board to no longer include questions about biological, stellar and cosmic evolution (including the big bang) in statewide student evaluation testing is being viewed by many to eventually result in the elimination of biological evolution from the state’s science curriculum.¹⁻⁴

Unfortunately, it will likely lead to a reduction of quality science education in general. In response to this development, *Time* magazine, in its August 23, 1999 issue, ran, as its cover story, a piece on “amazing new discoveries” that add to the already “convincing” evidence that human beings evolved from an ape-like ancestor over the course of the last 4 to 6 million years.⁵ The article’s opening tone is condescending to “creationists and their intellectual allies.” The writers of this piece would have the readers believe that it is all but a foregone conclusion from the scientific evidence that man is nothing more than the latest ape to be ‘served up on the evolutionary palette’. In support of this, the authors of the piece site four recently discovered hominid ‘species’ to support this assertion. However, we find this piece to be unbalanced. The importance and the general response of paleoanthropologists to these newly identified species are exaggerated by the authors of the *Time* article. Moreover, several recent important discoveries that create problems for the evolutionary paradigm of man’s origins are not even mentioned. This leads to the questions, “does the scientific evidence really provide wholesale support for human evolution?” “Is the creationist view of man’s origin really anti-scientific and anti-intellectual?”

At Reasons To Believe, we maintain that the facts and record of nature and the Bible are not complementary forms of truth that never overlap, as Stephen Jay Gould asserts, but rather, are in complete harmony and are, in actuality, integrated forms of truth.⁶ If God, the Creator, is responsible for the words of the Bible then nature’s record, as *correctly* interpreted through scientific study, should never disagree with the words of the Bible, as *correctly* interpreted through theological study. In fact, the Christian view is that God has revealed Himself to man not only through special revelation, but also through His creation.⁷ If there is a disagreement between science and theology, it is due to a faulty interpretation from either one or both accounts. If after careful re-examination of both interpretations, the scientific record and the Bible do not agree, it would be fair to conclude that the Bible is not true. However, if after careful re-examination of both interpretations, the Bible is found to be true, our only rational response is to embrace its message and accept Jesus Christ as our Savior and acknowledge Him as having control over our lives.

The Bible invites its readers to put it to the test.⁸ It is in this context that we will examine the bipedal primate fossil record (or what secular paleoanthropologists call the hominid fossil record) and most recent biochemical studies concerning modern man’s origin. In doing so we will openly put the Bible to the test. Likewise, we will put the evolutionary paradigm with respect to man’s origins to the test. We agree with the editors of *Nature*

magazine, that the interrogation of nature using the scientific method will help settle the creation-evolution controversy.⁹ Likewise, we would add that continued interrogation of Scripture using proper exegetical methodology will go far in settling this debate. Contrary to the opinion of the editors of *Nature*, we do not regard the doctrine of divine creation as dogmatic, but consider it to be a rational conclusion that results from examination of the scientific evidence. Divine creation is supported by scientific evidence and will continue to find support from on-going scientific discoveries and advances. We maintain that a proper reading of the Bible text of Genesis 1:26-27, and an objective, non-theory-laden view of the scientific evidence are in complete agreement, thereby providing strong support for the validity of the biblical view of man's beginnings. Likewise we question whether a natural evolutionary interpretation of the data pertaining to man's origins finds similar support. As we will demonstrate, the creationist view of man's origins is scientifically justified, and in no way threatens the integrity of science education.

Philosophical Considerations

It is odd that adherents to biological evolutionary theory continue to assert that natural process evolution is a fact. (We define biological evolution to mean macroevolutionary changes in which one species gives rise to another distinct species. We want to avoid the intellectual sleight of hand that is used time and time again, in which all agree that change is a fact of nature, and from this point wind up at the conclusion that biological macroevolutionary change independent of supernatural intervention is a fact.¹⁰) The insistence that evolution is a fact is contrary to the very nature of science. Theories are always subjected to on-going scrutiny and testing regardless of how successful and widely regarded they are. Even though we accept a given theory as the best of all possible explanations, and use it as a framework to interpret our results, we are continually evaluating its validity. If not for this approach, quantum mechanics and relativity would never have been born. Rather, we still would be declaring Newtonian mechanics to be a fact - the theory being how to get certain observations to fit within its tenets.

In the case of cosmology, we have the ideal model of how this process works with respect to origins research. Throughout the last century, there have been many ideas proposed for the origin of the universe with each model gaining popularity in its time only to be discarded as new observational and theoretical evidence emerged. The big bang has not been declared to be a fact, with the subsequent theories designed to demonstrate how it occurred. The big bang has emerged as the model for the universe's beginning through arduous testing with the oscillating universe and steady state theories (and others) falling by the wayside.¹¹ Furthermore, the big bang model has gained wide-scale acceptance in spite of its clear theological implications. These theological implications are prompting some workers to come up with alternatives to the big bang. The big bang is withstanding these challenges.¹² Those scientists who do oppose the big bang, do so for philosophical more so than for scientific reasons.¹³ Has research stopped in cosmology because the big bang reveals the necessity of a Creator? Hardly.

Given the most recent discoveries in cosmology regarding the universe's transcendent beginning (i.e. independent of matter, energy, space and time), the design features of the universe and the research supporting the anthropic principle, it is odd that many scientists resist appealing to supernatural causes to explain phenomena in the material world. This refusal is an *a priori* philosophical position. It is not a demand of the scientific process. In fact, nearly all of the earliest modern scientists, were first, and foremost, Christians. These early pioneers gave birth to and nurtured modern science because of their Christian world-view.^{14,15} The evidence from cosmology indicates the necessity of a supernatural, transcendent Creator. If this is so, we should respond to the evidence and accommodate possible supernatural explanations in other scientific areas.

With respect to human origins, evolutionary biologists have made an *a priori* philosophical commitment to a strictly naturalistic explanation based primarily on a neo-Darwinian evolutionary paradigm. Moreover, many of these scientists refuse to use newly discovered data to evaluate the theory of Darwinian evolution. When the data is enigmatic and contradicts the theory of evolution, no consideration is given to the possibility that the

theory may be wrong. Instead, these workers go through intellectual contortions to make the data fit the theory. This is an important point to keep in mind during this discussion. At the end of the day, we all have biases that we bring to the table. No scientist is completely objective. Honest scholarship demands that these biases be clearly communicated and taken into consideration at all times.

Outside of astronomy, the question of origins is not science, but rather history. Origins research seeks to recount the events of a unique, one-time occurrence in the past. With the exception of astronomy, the opportunity to design and repeat carefully controlled experiments is not available to those engaged in deciphering origins. The approach to the problem, must be one in which possible scenarios are proposed and evaluated based on the available observational and historical evidence. The scenario which best fits *all* the data becomes the most likely sequence of events. It is a weight-of-evidence approach. New discoveries help to evaluate the likelihood of the available scenarios. However, the evidence in all totality must be considered even in the light of new discoveries. Scenarios can be falsified, but never conclusively proven true. Moreover, we would expect to see certain pieces of evidence for each scenario. In this respect, there is a predictive component to origins research.

The Scenarios for Man's Origin

To date, most scientists, and much of the general public, have accepted only one scenario for human origins, namely, the evolutionary scenario. With it being the only scenario under consideration, it is not surprising that many scientists regard human evolution as a fact. Again, given the recent developments in cosmology, astronomy and physics, we are led to consider an additional scenario, the biblical scenario. If the biblical scenario is truly without merit, it will not be supported by the scientific data and can be discarded. However, if it is consistent with the scientific evidence, then it deserves to be considered as a legitimate, scientific alternative to evolution regardless of the implications it has to non-Christian worldviews and philosophies.

The Evolutionary Scenario¹⁶

The current theories of human evolution describe modern humans as emerging gradually from more primitive bipedal primates through Darwinian processes. *Australopithecus*, which appears in the fossil record about 4.4 to 1.5 million years ago throughout eastern Africa, is the first bipedal primate genus that is thought to have directly led to modern humans. *Australopithecus* comprises a diverse group of small-brained extinct bipedal species that were confined to the savannas of Africa. Over time, it is thought that this genus gave way to the genus *Homo*. Among paleoanthropologists, there is no consensus as to which australopithecine species gave rise to *Homo*. Nor are there clearly established evolutionary relationships among numerous *Australopithecus* and *Paranthropus* species. *Homo* first appears in the fossil record about 2 million years ago with the appearance of *Homo habilis* in eastern Africa. As pointed out in the *Time* article¹⁷, human evolution is not thought to have occurred via the simple progression of improved hominid species over time, but rather involved a menagerie of ape-like animals involved in an "elimination tournament" all vying for survival and dominance. As with the australopithecines, there is no consensus model for evolutionary relationships among *Homo*, and no acknowledged direct ancestor to *Homo sapiens sapiens* (modern humans).

The Biblical Scenario¹⁸

The creation account of man in Genesis 1:26-27 states, "Let us make (*asah*) man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and over all the creatures that move along the ground. So God created (*bara*) man in his own image, in the image of God, he created (*bara*) him; male and female he created (*bara*) them.

The words in parentheses are the ancient Hebrew words that are translated into English as the word create. The Hebrew definitions of these words have direct bearing on this discussion.¹⁹

Asah - to make, create. It is used in the sense of fashioning an already created object.

Bara - to create, bring about, to bring into existence out of nothing. Indicates a new creative act not a refashioning of an existing object.

The creation of man is described using two different verbs in the Hebrew. One verb (*asah*) means to fashion using a substance already in existence. The other verb (*bara*) means to bring something into existence that never existed before. We would suggest that the verb *asah* accounts for man's biochemical and morphological similarity to other primates.²⁰ While the verb *bara* considers man's unique qualities, such as awareness of absolute right and wrong, concern about death and beyond, a tendency towards worship of that which is outside of nature, and self-awareness. These spiritual qualities cause man to bear God's image and give man his unique standing among all living creatures in the animal kingdom. They were unique, miraculous creations of God, created as fully developed human beings, with DNA distinct from any creature. While humans may have shared physical similarities with other creatures, they were not simply hominids with a spirit.

Biblical dating of man's origins using genealogies in Genesis puts his first appearance at tens of thousands of years ago, but no later. These genealogies are incomplete but adequate for their intended purposes in the text. The biblical account describes humans as originating from a single geographical region. Moreover, it requires the sudden appearance of modern man in the fossil and archeological record and no clear connection with any other bipedal primate. (This does not mean that man does not share anatomical or biochemical features in common with hominids, but rather that there is no clear evolutionary connection to other hominids.)

The Biblical Perspective on the Hominids²¹

We view the hominids assigned to *Australopithecus* and *Paranthropus* as being ape-like creatures that possessed an intelligence, will and emotion. The australopithecines had some form of bipedal capability and quite possibly used crude tools. These ape-like mammals were present on the earth from around 4.5 million years ago until about 1.5 million years ago when they went extinct. Likewise, we regard the hominids assigned to early *Homo*, such as *Homo erectus*, *Homo ergaster*, *Homo antecessor*, *Homo heidelbergensis*, and *Homo neandertalensis*, as being upright walking primates that possessed intelligence, will and emotion. There is no evidence that these animals possessed a spirit, since no religious activity can be seen in the archeological record for these animals. Although these animals used tools, the tool kits used, even by Neandertals, were not as sophisticated as those used by modern humans. Moreover, Neandertals showed different behavior and in all likelihood did not possess language capacity.²² While not specifically alluded to in the text of Genesis 1, the hominids creation is encompassed by the Day Six Creation events in which the *nepes* or animals with will, emotion and intelligence are created.²³

The Scientific Evidence

With two general scenarios for man's origins outlined, we now turn to the scientific evidence to determine which scenario best accommodates all the evidence.

Contrary to the claims of some Creationists, we find that there is ample evidence from the fossil and archeological evidence for the existence of bipedal primates species dating back to 4.5 million years ago.^{24, 25} The dates and ages of the hominid fossils are not widely disputed in the scientific community. We share this view. We do *not* take the position that the examples of Nebraska Man and Piltdown Man call into question the validity of the entire hominid fossil record and the existence of the now extinct bipedal hominids. In fact, we will demonstrate that the reality and reliability of the fossil record, along with work in molecular genetics provides powerful support for the biblical scenario for the origin of humans and call into question the evolutionary scenario. However, as we will demonstrate, Nebraska Man is an extreme example that, in dramatic fashion, points out the problems associated with the drastically incomplete and fragmentary nature of the hominid fossil finds.

The nomenclature used by paleoanthropologists when discussing bipedal primates can be misleading. These

scientists often refer to all the members of the genera *Australopithecus*, *Paranthropus* and *Homo* as human. This is unfortunate. In our experience, we have noted that those not familiar with this practice commonly misinterpret this to indicate that the scientific evidence places human beings (*Homo sapiens sapiens*) as far back as 4.5 million years ago. In the process, the marked morphological and behavioral differences between the extinct hominids and modern man are not clearly noted. Even more confusing is the practice of some paleoanthropologists to refer to all *Homo* species including *Homo erectus*, *Homo heidelbergensis* / 'Archaic' *Homo sapiens*, *Homo neandertalensis* as *Homo sapiens*. This practice reflects in part the bias of many paleoanthropologists towards a naturalistic view of mankind's origin and leads to the misperception that human evolution has a stronger basis in fact than is actually indicated by the data. In this paper we will use the term human to refer strictly to *Homo sapiens sapiens*, which first appear in the fossil record less than 100,000 years ago.

Is It Possible To Declare Human Evolution As A Fact?

It is widely acknowledged that the fossil record is incomplete. Yet many paleontologists hold that while incomplete, the fossil record is generally adequate enough to discern patterns such as stasis and absence of gradual evolutionary trends.²⁶ The hominid fossil record, too, is incomplete, but it is questionable if the hominid fossil record is adequate to discern clear phylogenetic relationships. Most hominid fossil discoveries are partial crania, partial jaws, isolated teeth and/or occasionally isolated limbs.^{27, 28} It is very rare for paleoanthropologists to find a complete cranium, let alone a complete skeleton. Moreover, very few of the extinct hominid species are known from a large number of samples. In most cases, there are a limited number of specimens that are attributed to a given hominid species. Further compounding this problem, is the fact that the hominid remains often have been crushed, shattered, and deformed prior to fossilization or through geological processes. (See below for a further discussion on the particular problems associated with cranial fossils and their use to estimate hominid brain volume.)

It is not clear how many hominid species have existed throughout the course of the last 4.5 million years. In part, this is due to the incompleteness of the fossil record. However, it is also a function of the nature of the hominid fossil record as well. With a limited number of cranial and post cranial fossil fragments to work with it is not clear if observed differences in morphology are true indicators of a novel species or simply intraspecific variations within a population, across geography or through time. This problem and its implications are illustrated in a recent report describing a newly discovered partial cranium and partial jaw ascribed to *Australopithecus boisei*.^{29, 30}

The ambiguity surrounding the definition of a species further complicates the process of determining the number of hominid species.³¹ There is no established relationship between morphological differences and speciation. A species can be defined as an interbreeding population (biological species concept) or as morphologically distinct populations (phylogenetic species concept). Based on which concept the researcher embraces he/she will either view novel anatomical features as indicative of a new species (splitters) or as an intraspecific variation (lumpers). That is, researcher opinion may have as much to do with determining hominid taxons as does objective scientific data.

Evolutionary phylogenies (relationships) are determined by comparing anatomical similarities in the fossil record and among extant species. Given the problems with the hominid fossil record it is questionable if evolutionary biologists can ever hope for more than crude working phylogenies.³² Examination of textbooks and treatises on human evolution point to the reality that paleoanthropologists are far from reaching a consensus on the pathway of hominid and human evolution.^{33, 34} The uncertainty of hominid phylogenetic relationships has recently been underscored.^{35, 36} Paleoanthropologists, Bernard Wood and Mark Collard have presented a convincing argument for the removal of the two closely related species *Homo habilis* and *Homo rudolfensis* from the genus *Homo* and their placement among australopithecines. *Homo habilis* and *Homo rudolfensis* are now recognized as having ape-like body mass, body proportions, teeth, and jaws closely related to

australopithecines. The bipedalism possessed by these organisms is also distinct from the obligate bipedalism of *Homo sapiens*, and closely aligned to that of the australopithecines. A *Homo habilis* and *Homo rudolfensis* and the other australopithecines displayed facultative bipedalism and the capability for tree climbing.^{37, 38} This new understanding now weakens the position of *Homo habilis* and *Homo rudolfensis* as transitional species. These two species have long been regarded as transitional species between the australopithecines and *Homo erectus*. Placement of species *Homo habilis* and *Homo rudolfensis* among australopithecines creates a discontinuity in hominid phylogenies. This recent work was not cited in the *Time* article. Could it be that the reason for this is because it does not help “fill in the story of how we evolved”, but reveals how little insight paleoanthropologists have into human origins?

There are other problems that frustrate paleoanthropologists’ efforts to establish hominid evolutionary relationships.³⁹ Convergent features are quite common among hominid fossils and suggest evolutionary connections among hominids that do not exist. It is troubling to discover that paleoanthropologists recognize this as a wide spread problem, but have no clear understanding as which traits are convergent. Additionally, small data sets that are focused on hominid crania also lead to artificial results, since other important anatomical features are disregarded. Postcranial fossils are not as abundant as cranial remains in the hominid fossil record. Moreover, cranial traits are often treated as independent from one another. In actuality, many of these traits are more appropriately grouped as a trait complex. If trait complexes are not recognized, then artificially strong evolutionary relatedness is concluded when in fact it may not be the case at all.

It is clear that evolutionary relationships proposed by paleoanthropologists are highly speculative and developed from unreliable and poorly understood data sets of limited size. In light of this, it is scientifically untenable to assert that human evolution is a fact. What is a fact, is that evolutionary biologists have chosen to interpret their data within an evolutionary paradigm exclusively. From this framework, they then declare that their data supports human evolution. To demonstrate that humans evolved by natural processes, there must be rigorous evidence of clearly established evolutionary relationships with obvious transitions in the fossil record. The fact that there is no consensus among paleoanthropologists concerning the pathway of human evolution, nor can there ever be given the data available, means that human evolution has not been established as a fact. In addition to time-based verification, there also must be a well-defined mechanism that can produce the necessary evolutionary changes in the time available. Recent work on methodology to determine extinct hominid brain size indicates that this is also not the case for human evolution.

Brain Size Measurements

One of the key anatomical characteristics that distinguishes humans from other primates (both extant and extinct) is brain size - both absolute brain size and the relative size of the brain with respect to overall body mass.⁴⁰ This is particularly significant, since our large brain is responsible for our intelligence and the special ability to develop and use symbolic communication, speech, and tools that are foundational for establishing and maintaining human cultures and civilizations. More importantly, the human brain is responsible for our consciousness and self-awareness. It is not surprising that paleontologists have focused much attention on brain size in their human evolutionary models. Estimates made by paleontologists from fossil specimens seem to suggest that a continuous increase in hominid brain size has occurred with time across species that are regarded as being phylogenetically related.^{41,42} Furthermore, surveys of brain size ranges estimated by paleontologists for purported ancestor and descendent species appear to overlap supporting the evolutionary model for human origins.⁴³

In light of this seemingly compelling evidence for human evolution, it is important to note that there are significant problems associated with making brain size measurements of hominid fossils. Many of the available fossil skulls are damaged and deformed and/or only partially complete making the measurement of endocranial volume possible only after researchers have corrected for the damage and reconstructed the skull to include the missing parts.⁴⁴ Obviously, researcher error in making these reconstructions is a concern and will impact brain

size determinations. Further complicating reported surveys of hominid brain size is the presence of a stone matrix within other fossilized skulls preventing the preparation of an endocast.⁴⁵ The mineralized matrix cannot be removed without damaging the internal features of these skull samples rendering the resultant endocast useless for brain size determination. For these specimens, brain size is calculated based on measurements of external skull features using modified equations developed for human endocranial size determinations. Again, error is introduced, since workers must make assumptions in order to modify the original equation without being able to validate these modifications. Error also results from attempting to make high precision measurements on external skull features that are deformed or damaged. Clearly, reported values of hominid brain size must be regarded as estimates.

Recently a team led by Glenn Conroy developed and validated methodology to accurately and precisely measure the cranial capacity of fossil skulls based on 3-D computed tomography imaging (CTI) technology and rapid-prototyping stereolithography techniques.^{46,47,48} The measurements made by this approach are objective and are highly reproducible and more accurate than the corresponding hand-made measurements which are subjective and prone to researcher error. A 2% error was found when CTI brain size results for 10 human skulls were compared with volumes determined directly by filling the skulls with mustard seed.

Conroy and co-workers applied their CTI methodology to determine the brain size of an *Australopithecus africanus* specimen, Stw 505, discovered in Sterkfontein, South Africa dated at 2.6 to 2.8 million years old.⁴⁹ Earlier estimates of brain size for this specimen surpassed 600 ml, which would make it the largest *A. africanus* brain known exceeding that of many early *Homo* species. If this were indeed the case, then it would garner support for hominid evolution, in general, and more specifically, for models in which *A. africanus* evolved into *Homo habilis*. In contrast to both of these scenarios, Conroy and his colleagues measured the brain size of Stw 505 at ~515 ml - approximately 15% smaller than initial estimates. This result has not gone unchallenged. In separate responses, C. A. Lockwood and W. H. Kimball, and J. Hawks and M. H. Wolpoff have asserted that Conroy and his team failed to adequately take into account damage and deformation when making endocranial volume measurements resulting in a low biased measurement.^{50,51} However, in response to these protests, Conroy and his co-workers have clearly demonstrated that their result is sound and has been arrived at by carefully considering and correcting for any post mortem damage and deformation.⁵² There seems to be little doubt that the Stw 505 specimen is not an extraordinary fossil find, but rather represents a typical *A. africanus* skull.

The implications of these CTI measurements extend beyond the importance of the Stw 505 sample. Conroy and co-authors conclude the *Science* article describing this work by stating: "The recognition that no australopithecine has an endocranial capacity approaching, let alone exceeding, 600 ml, and that several key early hominid endocranial estimates may be *inflated* [my emphasis], suggests that current views of the tempo and mode of early hominid brain evolution may need re-evaluation."⁵³ Commenting on this work, Dean Falk, of SUNY at Albany, echoed these concerns, noting that several endocasts in her collection appear to be considerably smaller than initially measured using calipers.⁵⁴ Dean Falk has confidently held to this view even in the face of a direct protest from paleoanthropologist Tim White of UC Berkeley.^{55, 56}

The bias in brain size measurements will undoubtedly be extended to include other specimens as the CTI technique is more broadly applied. It is interesting to note that the study of Conroy and co-workers is not the first to suggest that hominid endocranial volumes reported in the paleoanthropological literature are biased high. Responding to Conroy's paper, Ralph Holloway of Columbia University has pointed out that as early as the 1970's he recognized that several reported endocranial volume measurements were over estimated.⁵⁷ Holloway published endocranial volumes for the Sts 71 specimen of 428 ml and for the Taung Child of 404 ml compared to previously reported values at the time of 480 ml - 520 ml, and 525 ml - 562 ml, respectively. Holloway also reported an endocranial volume of 480 ml for the Sts 5 specimen which Conroy and his fellow researchers have recently confirmed using CTI.⁵⁸ Most recently, Dean Falk reported at the 1999 annual meeting of the American Association for Physical Anthropology held in Columbus, Ohio that the cranial capacity of several *A. africanus*

specimens were re-measured to be about 450 ml compared to the previously reported values near 500 ml.⁵⁹

It appears as if the approaches used by paleontologists to measure brain size of extinct hominids has been yielding results that are about 15% to 20% higher than the actual value. This throws serious doubt on the reliability of brain size estimates that have appeared in the paleoanthropological literature. Caution should be used when considering any analysis or survey that uses heretofore reported brain size values to establish evolutionary scenarios. When this high bias is accounted for in hominid brain size surveys, any possibility of overlap between the brain size of extinct hominids and modern *Homo sapiens* is removed. A gap in brain size between *H. erectus* and modern *H. sapiens* is counter to what would be expected if a continuous descent with modification mechanism was responsible for human origins. Furthermore, the existence of a gap in brain size would demand an even more dramatic rate of evolutionary change than currently believed necessary to produce the pronounced changes needed to form the human brain by an evolutionary process. It would be premature at this point to conclude that a gap exists in the brain size between extinct *Homo* species and modern humans based on a single study. However, the results that are now being reported by Conroy and others represent a powerful challenge to the assertion that hominid evolution is a fact. Interestingly, Lemonick and Dorfman did not cite this significant work in the *Time* article.

Appearance of Modern Man

The timing and the nature of the appearance of modern man in the fossil record are important to establishing the validity of the biblical scenario for the origin of man. The fossil evidence clearly shows that at about 40,000 years ago, there was an explosive appearance of Cro-Magnon man. Cro-Magnon man is indistinguishable from modern humans (*Homo sapiens sapiens*).⁶⁰ Prior to the sudden appearance of Cro-Magnon man, the fossil record is extremely sparse and unclear. There is the possibility that *Homo sapiens* may have appeared as far back as 100,000 to 130,000 years ago based on the Omo Kibish discovery and the discoveries at Qafzel and Skhul in Israel.^{61,62} These specimens show some anatomical similarity to *Homo sapiens sapiens*, but display clear behavioral differences. The behavior of these hominids is closely akin to that of Neandertals. It is important to note that the dating of these samples has been problematic. Specimens that fall between 30,000 years ago and 500,000 years ago are not covered by the well-established ¹⁴C and potassium-argon dating techniques.⁶³ The dates estimated for have been estimated using the newly developed luminescence and electron spin resonance techniques. These dates must be regarded as estimates, at best.

Another interesting feature of the hominid fossil record is the apparent disappearance of *Homo sapiens* between 80,000 and 40,000 years ago. From an evolutionary perspective it has been proposed that *Homo sapiens* populations plummeted to near extinction and then for some unknown reason bounced back in full force about 40,000 years ago.⁶⁴ This population bottleneck is viewed by evolutionary biologists as being responsible for the high degree of genetic uniformity among modern humans. (See below.)

The sudden appearance of modern humans in the fossil record at 40,000 years ago is in complete agreement with the biblical date for the appearance of mankind. Given that the fossil record is so sparse and the dating is problematic beyond 35,000 years ago, it is uncertain as to the true identity or true time of appearance of the Omo Kibish and Qafzeh and Skhul finds. It is quite conceivable that these specimens may not even be *Homo sapiens sapiens* given their behavior. If these specimens are not true humans, then the absence of *Homo sapiens* in the fossil record between 40,000 and 80,000 years ago may actually represent the extinction of those particular species of bipedal primates, or reflect the fact that *Homo sapiens sapiens* did not appear on earth until about 40,000 years ago. If this is the case, then, the sudden appearance of modern man at 40,000 years ago can be attributed to the special creation of man by the Creator.

Archeological Evidence

With the explosive emergence of Cro-Magnon Man in the fossil record around 40,000 years ago came rapid

changes in the archeological record. There is a sudden increase in the complexity of the tool kit and sophistication of tool use observed around this time. The suddenness of this change in the archeological record is even more striking given that prior to the emergence of modern humans in the fossil record, the style and use of stone tools remained stagnant for hundreds of thousands of years.⁶⁵ Showing up nearly concomitantly with the rapid shift in tool kit is the sudden appearance of sophisticated art and religious expression. Sophisticated works of art first appear in the fossil record about 30,000-40,000 years ago and evidence of religious expression appears only about 30,000 years ago.^{66, 67, 68, 69} Prior to the appearance of sophisticated art around 30,000-40,000 years ago, very little, if any, evidence for art appears in the archeological record. Paleoanthropologists have referred to this as the “big bang” of artistic expression.^{70, 71} The quality of the artistic expression in these ancient works of art is spectacular. For example, in the recently discovered Grotte Chauvet caves, which contain the oldest advanced cave art yet discovered (dated at 32,000 years ago), the quality of the art work is so remarkable that it has demolished all previous chronologies for the development of artistic techniques such as shading and perspective.⁷² The paintings in these caves are actually more sophisticated than the work found in caves such as Lascaux and Altamira in which the cave art is dated at half the age of that found in Grotte Chauvet.

The rapid changes seen around 35, 000 to 45, 000 years ago include:⁷³

- A shift in stone tool technology from predominantly “Rake” technologies to “blade” technologies, achieved by means of more economic techniques of core preparation.
- A simultaneous increase in the variety and complexity of stone tools involving more standardization of shape and a higher degree of “imposed form” in the various stages of production.
- The appearance of relatively complex and extensively shaped bone, antler, and ivory artifacts.
- An increase in the rate of technological change accompanied by increased regional diversification of tool forms.
- The appearance of beads, pendants, and other personal ornaments made from teeth, shell, bone, stone, and ivory blanks.
- The appearance of sophisticated and highly complex forms of representational or “naturalistic” art.
- Associated changes in the socioeconomic organization of human groups, marked by
 - a more specialized pattern of animal exploitation, based on systematic hunting
 - a sharp increase in the overall density of human population
 - an increase in the maximum size of local residential groups
 - the appearance of more highly “structured” sites, including more evidence for hearths, pits, huts, tents, and other habitations

These results are contrary to what would be expected for the gradual evolutionary transformation of archaic *Homo sapien* species into modern humans. If an evolutionary mechanism was responsible for modern man’s appearance, then evidence of gradual transformations should be observed in the archeological record. We simply do not see this. In the words of paleoanthropologist Christopher Stringer, “It is an extraordinary catalogue of achievements that seem to have come from virtually nowhere”.⁷⁴ The fossil and archeological records are both consistent with the biblical scenario and biblical date for man’s beginnings.

Genetic Evidence

Up to this point, we have shown that the fossil and archeological evidence does not unequivocally establish human evolution as a fact. Moreover, there is nothing in the fossil and archeological record that precludes the biblical scenario for man’s origins as being true. In fact, 1) the discontinuity created in evolutionary scenarios by assigning *Homo habilis* and *Homo rudolfensis* to australopithecines; 2) the problems with the overestimation of brain size in extinct hominids and the need it creates for identifying a mechanism to account for rapid the increase in brain size with the appearance of modern humans; and 3) the sudden appearance of *Homo sapiens*

and complex behavior in the fossil and archeological record after a 40,000 year absence of any species closely resembling modern humans all provide support for the biblical creation model.

Additional support for the biblical scenario for man's origin comes from the lack of genetic diversity of humans. As biologists studied humans and species of apes in the 1970's and 1980's, some rather surprising information was being discovered that distinguished modern man from apes and other primates. Surprisingly, scientists discovered that human genetic diversity is far less than what one would predict from Darwinian theory.^{75, 76, 77} The genetic variation among the different human races has been found to be much less than that for isolated populations of chimps, orangutans and other primate species. In addition, an analysis of the genetics of populations of apes reveals that different population groups possess fixed novel mutations that characterize each population. In contrast, there are no novel mutations or genetic alleles that specifically characterize any one human race from another. Dr. Maryellen Ruvolo (Harvard University) has noted, "It's a mystery none of us can explain".⁷⁸ Moreover, examination of the genetic sequences of diverse modern human populations reveals minor differences.⁷⁹ All of this evidence suggested a recent origin for modern humans.

In the late 1980's and early 1990's a number of studies examined the mitochondrial DNA (mtDNA) of women all over the world. These studies suggested that the last common ancestor of modern man (actually women) appeared within the last 200,000 years which is much more recent than previously thought.^{80, 81, 82, 83} Refinements in the measurements lowered the original estimates to 135,000 years and finally to 100,000 years (and as discussed below even possibly 50,000 years).^{84, 85} Scientists chose to examine mtDNA because, being enclosed within the subcellular organelle called the mitochondrion, there is no genetic recombination (males make no contribution of mtDNA to the fetus). All mtDNA comes from our mothers and is passed down from mother to daughter, since only mitochondria from the egg are used to make up the fetus. By tracing the differences in mtDNA from peoples around the world, scientists have calculated the probable date of the last common ancestor of modern humans at 100,000 to 200,000 years ago. Recent studies on the frequency of heteroplasmy (the possession of different mitochondrial biochemical types within a cell) indicates that mutations occur in mtDNA at a higher rate than initially thought. Re-calibration of the mtDNA molecular clock to take into account the higher mutation rate places the most likely date for man's appearance near 50,000 years ago.^{86, 87}

In 1995, scientists examined human origins from the perspective of male genetics.^{88, 89} Scientists have examined a gene (ZFY), which being on the Y chromosome, is passed down only from father to son. Thirty-eight men were chosen from all over the world (Africa, Asia, Australia, Europe, and Northern, Central, and South America). Scientists determined the actual genetic sequence in each man for this gene, which is 729 base pairs long. To their surprise, all men had identical genetic sequences (over 27,000 base pairs analyzed). Scientists have calculated the most probable date for the last common ancestor of modern man, given the sequence diversity from modern apes. Using two different models this date is either 270,000 or 27,000 years ago. However, both these models assume that the male population during this entire period of time consisted of only 7,500 individuals. The date estimates from these models would be significantly reduced if the male population were higher than 7,500, which is very likely. Two separate studies using similar techniques looked at larger pieces of the Y chromosome, which would reduce the uncertainty in the calculation of dates. One study examined a gene which was 2,600 base pairs and determined a last common ancestor date of 188,000 years ago (minimum of 51,000 and maximum of 411,000 years ago).⁹⁰ The other study used a very large piece of the Y chromosome (18,300 base pairs) and calculated a last common ancestor date of modern man of 43,000 years ago (minimum of 37,000 and maximum of 49,000 years ago).⁹¹ This latter study also examined mitochondrial DNA from women and determined an origination date of 90,000-120,000 years ago.

A study published in 1996 examined linkage disequilibrium at the human CD4 locus (a T-cell associated antigen) as a means to establish the date of modern human origins.⁹² This study determined a maximum origin date of 102,000 years ago based upon the assumption that the Alu (-) allele arose 5 million years ago, or almost immediately after mankind's split from other primates. As they stated, "It is likely that the Alu deletion event occurred more recently, in which case our estimates for the date of founding of the non-African populations

would also be more recent.” Preliminary studies from chromosomes 19, 11 and 8 show similar results to that seen on chromosome 12 (the locus of the CD4 gene).⁹³

The mutation rate among humans also suggests a recent origin for man and creates problems for the evolutionary models for the origin of man. A just completed study examined the mutation rate for humans. Using “conservative assumptions” the authors found that the overall mutation rates was 4.2 mutations per person per generation, with a deleterious rate of 1.6.⁹⁴ When using more realistic assumptions the overall mutation rate for humans become 6.7 with a deleterious rate of 3.1. Such a high rate should have resulted in extinction of our species long ago. They stated in their conclusion:

“The deleterious mutation rate appears to be so high in humans and our close relatives that it is doubtful that such species, which have low reproductive rates, could survive if mutational effects on fitness were to combine in a multiplicative way.”

The authors had to rely upon a rare association of mutations, termed synergistic epistasis to explain why the numerous hypothesized deleterious mutations have not overwhelmed our genome. Instead of postulating the obvious (that the human genome is not as old as evolution would teach), evolutionists must rely upon the improbable to retain the evolutionary paradigm.⁹⁵

Neandertals

The fossil and archeological records and the genetic evidence produced by three separate lines of investigation all point to a recent origin of *Homo sapiens sapiens* (around 40,000 – 50,000 years ago) in line with the Biblical scenario. The most likely ancestor for modern man, given man’s recent appearance on earth, is *Homo neandertalensis*. Neandertals lived from about 150,000 to about 40,000 years ago in Europe, parts of Asia and in the Middle East.⁹⁶ (The dates for Neandertals are disputed in the literature.) This time frame immediately precedes the appearance of modern man. Neandertals evolutionary connection to modern man seems even more likely given the general anatomical similarities between *Homo neandertalensis* and *Homo sapiens sapiens*. Unlike other hominids, there are an abundance of Neandertal fossils and artifacts available. Some 30 complete Neandertal skeletons have been recovered.⁹⁷ This allows a rigorous assessment of the possibility that an evolutionary connection exists between modern man and Neandertals. Although anatomical similarities between Neandertals and modern humans exist, researchers have also recognized many differences as well. Compared to humans Neandertals display:⁹⁸

- a poorly developed chin
- a more elongated foramen magnum
- the presence of a medial pterygoid tubercle
- a highly developed twin brow ridge
- large round eye sockets
- a brain that is flatter and smaller in front and more bulged in the back and sides
- an extremely large nose
- “cavernous” sinuses
- larger front teeth
- a flatter skull base and higher larynx
- thicker bones
- more compact bodies, barrel chests and shorter limbs

These differences were not regarded as meaningful by many paleoanthropologists who viewed them as the result of environmental influences. That changed with the discovery of a Neandertal infant skeleton by Yoel Rak in 1992. This skeleton possessed many of the same anatomical distinctions leading Rak and other paleoanthropologists to conclude that Neandertals were inherently distinct from modern humans.⁹⁹

More recent work on Neandertal morphology continues to support this conclusion and has cast serious doubt that humans and Neandertals shared a common evolutionary lineage. These studies have shown key differences in Neandertal's brain case and the presence of an internal nasal margin, a medial swelling of the lateral nasal wall, and a lack of an ossified roof over the lacrimal groove.^{100, 101, 102, 103, 104, 105} None of these features are found in *Homo Sapiens*, and the last feature is *not found in any other terrestrial mammal!* Neandertals had a huge nasal cavity coupled with a brain size larger than our own. However, with their carnivorous lifestyle, it seems likely that much of their brain might have been devoted to the sense of smell, being the “dog” among the hominids.

One hotly disputed question among paleoanthropologists centers on Neandertal's language capacity. While not completely conclusive, the evidence is ever increasingly pointing to the absence of speech capability and language among the Neandertals. For example, the structure of the Neandertals skull base is inconsistent with the capability for speech.¹⁰⁶ A recent high profile study has suggested that Neandertals and modern humans had comparable vocal abilities based on the size of the Neandertal's hypoglossal canal.¹⁰⁷ The hypoglossal canal transmits the nerve that supplies the tongue muscles. The argument is the more richly the tongue muscle is supplied with nerves (requiring a larger canal) the better the motor control of the tongue. This is a key requirement for speech. However, this hypothesis has been demonstrated to be false. That is, there is no correlation between canal size and the ability to vocalize among both extinct and extant hominids.^{108, 109} Neandertal language ability is being promoted by some paleoanthropologists in an attempt to maintain the evolutionary link to modern humans. However, the scientific evidence is continuing to demonstrate that as with other morphological characteristics, Neandertals and modern humans are distinct.

The question of Neandertals being a part of the evolutionary lineage of modern humans has been recently laid to rest by a brilliantly designed and executed study. Scientists extracted mtDNA from a 50,000-100,000 year old Neanderthal skeleton.^{110, 111, 112} When the 397 base pair Neandertal mtDNA fragment was compared with a mtDNA sequence of 986 nucleotide pairs from living humans of diverse ethnic backgrounds, the difference was enormous — 26 nucleotide base pairs in the mtDNA differed completely (a 6.5% difference, which is almost as much as the average difference between human mtDNA and chimpanzee mtDNA, which is 8.9%).¹¹³ In this region of the mtDNA, modern humans differ from one another in an average of eight base pairs, and those differences were completely independent of the 26 observed for the Neandertal fossil. The researchers conclusion: “Neanderthals were not our ancestors” - a quote from the authors of the study. In fact, the differences compared to modern humans were so great that calculations indicated that the last common ancestor between modern man and Neandertal must have been at least 800,000 years ago, which was well before the first appearance of Neandertals in the fossil record.

To add even more weight to the finding, scientists have also analyzed mtDNA from an ancient modern human skeleton. A British team analyzed a portion of mtDNA in a 10,000 year old human skeleton found near Cheddar, England.¹¹⁴ The mtDNA from this skeleton differed from that of modern Europeans by only one nucleotide base pair — essentially identical to that of modern humans. The lack of “evolution” for humans over the last 10,000 years stands in sharp contrast to the differences seen between modern humans and Neandertals.

These amazing discoveries about Neandertals are being widely embraced by paleoanthropologists (although there are a few dissenters).¹¹⁵ It is clear that not only the best, but the only legitimate candidate for modern human's ancestor has been displaced from the human evolutionary pathway. With no clear immediate ancestor to modern humans, it is scientifically unsound to maintain human evolution as a fact, let alone a reasonable scenario for the origin of man. The absence of an ancestral species to modern man is consistent with the biblical scenario.

Sadly, what has emerged as one of the most important revelations in paleoanthropology in recent years was down played in the *Time* article. The recognition that Neandertals are a separate lineage unrelated to man, as with other recent discoveries, highlights the weak evidential foundation of the human evolutionary paradigm

counter to the desired theme of the *Time* article.

Recent High Profile Paleoanthropological Discoveries

In the *Time* article, four recent discoveries are touted as revealing new secrets about man's evolutionary past. The first discovery mentioned is that of the sister hominid species *Ardipithecus ramidus* and *Australopithecus anamensis* dated at around 4.5 and 4.2 million years old, respectively. From an evolutionary standpoint, these are important species because they show up in the fossil record in the time frame that apes and hominids supposedly diverged (between 4 and 6 million years ago).^{116, 117, 118, 119, 120, 121, 122} To date no evidence has been presented to suggest that *Ardipithecus ramidus* possessed bipedal capabilities. However, the analysis of a nearly intact tibia, indicates that *Australopithecus anamensis* had bipedal capabilities.^{123, 124} The bipedalism that the australopithecines possessed was not the same type of bipedalism we possess as modern humans, but rather a facultative bipedalism. Australopithecines also possessed the ability to climb trees as well. This means that at about the time that apes and hominids were diverging according to evolutionary ideas, bipedalism emerged. This creates a problem for the evolutionary paradigm since it does not give adequate time for the complex anatomical changes needed to support bipedalism to emerge. Moreover paleoecological studies suggest that the locale of the *anamensis* find at 4.2 million years ago was a mixture of savanna and woodlands.¹²⁵ Given that fact, an animal with mixed bipedal and arboreal climbing abilities is well suited for its environment. It is no longer believed that the change from woodland to savannas drove the emergence of bipedalism.^{126, 127} This leaves paleoanthropologists with no driving force or selective pressure to explain the emergence of bipedalism.

Also discussed in the *Time* piece is the discovery of a novel Australopithecine (*Australopithecus garhi*) dated at about 2.5 million years ago in Ethiopia. Because of its date, and the location of the find, it has been described as the missing transitional species between Australopithecines and *Homo*. However, the evidence supporting this interpretation is not compelling nor is it as widely accepted among paleontologists, as we would be led to believe in the *Time* article.^{128, 129, 130, 131} First, it should be pointed out that the evidence for this new species comes from a single partial fragmented skull and an upper leg and forearm bone discovered in the same general region, in the same stratigraphic layer, but one year apart. Under the best of circumstances, the data represents two individuals of the same species. The possibility is quite real that the fossil remains from the two finds are unrelated. Even, if the fossils come from the same species, they only represent two individuals. Because of this, there is no real understanding of the natural range of variation for the putative species traits or whether the fossil's characteristics are the result of geological deformations or other anomalies. Moreover, the traits exhibited by the fossil skull, at best, only weakly link it to *Homo*. Most paleoanthropologists are not certain as to *A. garhi*'s relationship to other hominids. Given the recent re-assignment of the early *Homo* species *Homo habilis* and *Homo rudolfensis* to the australopithecines, the putative similarity to early *Homo* becomes even less meaningful.¹³² Recently reported phylogenetic analysis employing cladistics concludes that the placement of *Australopithecus garhi* ancestral to *Homo* should be rejected.¹³³ B. Asfaw *et al.* have challenged these results claiming misapplication of cladistics. Rather than using the data they reported for objective comparison, these workers prefer a subjective interpretation of their data.¹³⁴ It should be noted that the conclusions reported from the cladistics analysis were based on the results of two independent analyses.¹³⁵ Moreover, other paleoanthropologists have pointed out that it does not appear that there would be enough available time for evolution to transform *A. garhi* to *Homo*.¹³⁶ The use of tools and meat eating behavior attributed to this animal are interesting, but have limited bearing on its human character, since this behavior is also observed for chimpanzees.

Also mentioned in the *Time* article is the discovery of *Homo antecessor*, dated at around 800,000 years ago. This hominid has been proposed as an ancestor species for both Neandertals and modern humans.^{137, 138} *Homo antecessor* has been designated as a new species and as a key transitional fossil based on very limited data, namely, the partial face of a juvenile, the likelihood of delayed dental maturation and the crudely estimated brain volume from a single cranial fragment.^{139, 140, 141, 142} This has led to concerns among paleoanthropologists. Not only because the designation as species is based on a single partial skull, but also because it is based on a

juvenile specimen. With this being the case, there is not an understanding of the variation occurring across the species nor through the developmental process.^{143, 144} The possibility remains that this sample is a *Homo erectus* specimen. The importance to the human evolutionary scenario that paleoanthropologists ascribe of the *Homo antecessor* samples has yet to be established.¹⁴⁵ If anything, the existence of *Homo antecessor* as a novel species has the potential to throw the field of human evolutionary biology into a state of chaos, not yield new insight. For example, J. M. Bermudez de Castro *et al.*, are suggesting that *Homo erectus* is no longer part of the evolutionary pathway leading to modern man and Neandertals, but rather is a side lineage without descendants.^{146, 147}

The final discovery cited in the *Time* article is the uncovering of a child burial in the Lapedo Valley, just north of Lisbon, Portugal. The workers who discovered and studied the 24,500 year old skeleton concluded that it possesses a mix of Neandertal and modern human anatomical characteristics.^{148, 149} This interpretation supports the notion that Neandertals and *Homo sapiens* interbred resulting in the disappearance of Neandertals and the emergence of modern humans. Because the date of this find is after the disappearance of Neandertals, it has been concluded that there was significant interbreeding between the two populations, not just isolated interactions. This claim serves to keep the evolutionary connection between Neandertals and modern humans alive and challenges the accumulating morphological and biochemical evidence that Neandertals have no phylogenetic relationship to modern man, but rather disappeared without descent. (See above.) This interpretation has not been met with much enthusiastic support by paleoanthropologists. Commenting on this discovery, Ian Tattersal and Jeffery Schwartz state, “the analysis by Duarte *et al* of the Lager Velho child’s skeleton is a brave and imaginative interpretation, of which it is unlikely that a majority of paleoanthropologists will consider proven.”¹⁵⁰ The reasons for the lukewarm response of the anthropological community are many. First, as Tattersal and Schwartz point out, nobody knows what a Neandertal-human hybrid would look like.¹⁵¹ Secondly, this is a single find, if interbreeding was really so wide spread, then, as Christopher Stringer points out, we would expect to find these features in the numerous fossils of modern humans.¹⁵² More specific arguments against the interbreeding hypothesis include the fact that the grave containing the specimen was a typical human grave and the skeleton not only possesses no derived Neandertal features, but also has no hint of any Neandertal morphology.¹⁵³ It seems as if the fossil simply represents a stocky human child or human child with a growth abnormality.¹⁵⁴

These recent discoveries have no doubt elicited interest among paleoanthropologists. However, the importance attributed to most of these discoveries by paleoanthropologists as reported in the *Time* article is over blown. Moreover, it is not clear what insight these discoveries offer to those embracing an evolutionary scenario for man’s origins. In fact, if anything, they point out speculative nature of human evolutionary models and the lack of insight into the emergence of man that exists among paleoanthropologists. Finally, the early and sudden appearance of australopithecines with bipedal capability in a wood land/forest ecology creates a serious problem for the evolutionary paradigm.

Conclusion

We have presented comprehensive scientific evidence that, contrary to the commonly held view that humans have evolved from an ape-like ancestor, supports the biblical scenario for man’s origin as described in Genesis 1. It is clear from our analysis, that human evolution has not been established as a scientific fact. To declare evolution as a fact, and to only examine data in light of evolutionary theory, is counter to the way that the scientific enterprise is conducted and reflects a philosophical position. Modern cosmology and physics have allowed for the introduction of possible supernatural explanations for the material universe and phenomena occurring within the universe - particularly for scientific research into origins.

We have evaluated the scientific evidence in light of two scenarios: the evolutionary scenario and the biblical scenario. When taken as a whole, the scientific evidence more closely agrees with the biblical scenario. In fact, the paleontological evidence fails to establish a clearly defined evolutionary pathway with readily recognized

transitions. Moreover, the evolutionary paradigm cannot explain the sudden, recent appearance of modern man on earth with no evidence for an evolutionary ancestor.

Our analysis demonstrates that the creationist view deserves consideration in the science classroom along with the evolutionary paradigm. The words of the Bible and the facts and record of nature are not at odds, but are in full agreement.

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