

holes, worm holes and black holes. None of these items have been detected with certainty, including black holes. If black holes actually exist, they are locations of extreme space curvature where matter and light have become trapped. All these strange features may exist in deep space, along with other unknown objects not yet thought of. The universe surely contains many unknowns and surprises.

Creation implications

Some scientists have suggested models where the gravitational disturbance of space-time may help us understand the literal Creation Week.⁴ In such models, while 24-hour days passed in Earth's reference frame, billions of years of history actually transpired in deep space. The assumption is that there were greatly different time scales depending on one's location in space.

Such models also raise two interesting issues. First, just how far should we try to extend the current physical laws of the universe's *operation* to explain its *origin* during the Creation Week? We need to be aware that applying today's science to the initial events of creation may not be valid since supernatural activity took place on a grand scale during Creation Week. With regard to space-time, God may have added to the natural laws of operation by supernaturally stretching space.

The second issue concerns the extent to which time may be stretched by gravity. Accounting for *deep time* in space by gravitational time stretching, 10–15 billion years of history, is an extrapolation that is 10^{28} times greater than that observed so far with atomic clocks. Of course we haven't observed such changes on Earth today, because gravity is so weak. But general relativity specialists agree that there is no limit to the time dilation—for example at the event horizon of a black hole, time stops completely. Therefore an appropriate creationist cosmology can still make use of the principle. Humphreys' cosmology, for example, posits that during Creation Week Earth was inside such an event horizon, except of

a 'white hole'—a black hole running in reverse.

Some may wonder if it would be possible in future to manipulate clocks by compressing or stretching time scales. Could a person, in this way control his own destiny? However, Psalm 31:15 declares that 'My times are in his [God's] hand.' If the warping of space and time do indeed occur, it must be by God's direction. All relativistic time changes measured thus far are very small, only a microsecond or less, though they are real changes. This is somewhat similar to quantum mechanical effects which become significant only on the microscopic level.⁵

Conclusion

For astronomers who are uncomfortable with a beginning for the universe, even a big bang beginning 10–15 billion years ago, the latest WMAP conclusion that the universe is flat may be something of a disappointment. They would probably prefer an eternal universe which continually oscillates inward and outward.

Three centuries ago Isaac Newton wondered about the cause of gravity. More recently, Einstein proposed that the measured gravity force is actually caused by matter distorting space-time. However, the basic question still remains *why* matter distorts space in the first place. Gravity, the 'glue' which holds the universe together, remains a profound mystery.

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Manual dexterity in Neandertals

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A recent article on Neandertals was probably the most important one in the entire 27 March 2003 issue of *Nature*. Yet, it was less than one page long, was given no hype, and was written by four rather obscure anthropologists serving in two low ranked universities. It had the prosaic title, 'Manual Dexterity in Neanderthals'.¹ For anyone not familiar with current issues in paleoanthropology, it was just another 'ho-hum' article. Evolutionists, based upon their presuppositions, would find the article easy to ignore. Creationists, based upon our presuppositions, would find the article not at all surprising.

However, just beneath the surface of the article lies, as Philip Lieberman called it, the 'Neandertal Storm'.² Although Lieberman was referring particularly to the issue of Neandertal speech, the term 'storm' could well refer to almost every area of Neandertal research. To refer to 'Neandertal Discussions' would be far too mild a phrase to use considering the emotions that these ancient people—worthy relatives of ours—evoke. After studying the Neandertals for thirty years, I still find myself shocked at the prejudice that exists against them in the scientific literature.

At the heart of 'The Neandertal Storm' is the question: 'Who were these Neandertal people who are so little understood by evolutionists?' The question, itself, is surprising because: (1) we have known about the Neandertals since 1856, (2) we have more fossils of them than we have of any other hominid category, and (3) they are the most recent of all of the 'extinct' hominids, and hence should be the easiest to understand and study.

Based upon the fossils and the artefacts found in association with them, there is no question that the Neandertals were full members of the human family and probably part of the post-Flood / Ice Age European and western Asian

populations. Evolutionists are blinded by their philosophy from seeing the Neandertals as they really were. Instead, they impose upon the Neandertals an evolutionary template which does not really fit.

There are currently three evolutionist views regarding the Neandertals. The first view is the *Regional Continuity model*.³ It sees the Neandertals evolving in Europe and western Asia from older *Homo erectus* or archaic *Homo sapiens* individuals who lived in those same areas. The Neandertals then continued to evolve into modern Europeans in relatively recent times. In this view, the Neandertals are considered close enough to modern humans to be a sub-species, *Homo sapiens neanderthalensis*. Major proponents of this theory are Alan Thorne (Australian National University) and Milford Wolpoff (University of Michigan).

A second and more popular view is the ‘*Out of Africa*’ model.⁴ This view suggests that modern humans evolved in Africa and eventually replaced all *Homo erectus* and archaic *Homo sapiens* worldwide as well as the Neandertals in Europe. All of this was done with little or no genetic mixing. Thus, in this view, the Neandertals were just an evolutionary side branch unrelated to modern humans, and are classified as a separate, and less fully evolved, species, *Homo neanderthalensis*. They became extinct without issue. Major proponents of this model are Christopher Stringer (Natural History Museum, London) and Ian Tattersall (American Museum of Natural History).

A third, much newer, model has been proposed by Madrid’s Juan Luis Arsuaga (University College, London).⁵ He suggests that the Neandertals were only distantly related to modern humans but were equal to modern humans in almost every way. They were a separate, but different human species—whatever that means. Thus, he would also classify them as *Homo neanderthalensis*.

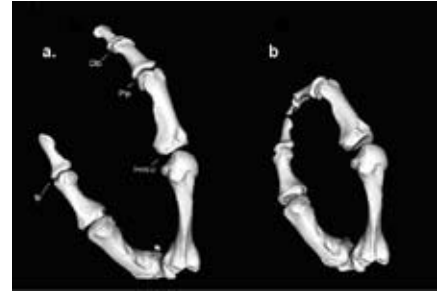
This controversy is emotionally charged because the question of human origins is loaded with politically sensitive matters involving racism and equality. It wouldn’t matter as much if we were

considering the origin of broccoli. It does matter when we consider the origin of humans. Holy Scripture is clear that all humans are created in the *Imago dei* (‘Image of God’, Genesis 1:27) and are very closely related (Acts 17:26). Scripture is the only basis for genuine human equality and dignity.

Evolution is intrinsically racist. Many evolutionists know it. They would like to keep it from becoming a matter of widespread public knowledge. Few people are aware of the full title of Darwin’s major work. It is: *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. In an evolutionist scenario, the only possibility for human equality is for all humans to have evolved from the very same root stock in a very short time so that substantial racial differences would not have had time to evolve. This is why the ‘Out of Africa’ model for the origin of modern humans is the more politically correct model. The idea of an African origin for modern humans, and having a woman, ‘African Eve’, as the hero of the plot, adds to its attractiveness.

The Neandertals do not fit into this politically correct environment; hence, the attempt on the part of many evolutionists to marginalize them. This takes the form of challenging the status of the Neandertals mentally, physically, and culturally. The article under discussion, ‘Manual Dexterity in Neanderthals’, is in response to the claim that the Neandertal hands were not capable of a precision grip. Hence, it is asserted by inference only, that they were incapable of making the Upper Paleolithic (Upper Stone Age) tools associated with the anatomically modern humans (the Cro-Magnon people) who allegedly replaced them in Europe.

Upper Paleolithic stone tools are works of art. They are beautiful, delicate, and have great variety. They are considered to be the reflection of a fully modern mind. The Middle Paleolithic (Middle Stone Age) tools, the Mousterian tools associated with the Neandertals, are very well done.



The laser-scanned Neandertal La Ferrassie I thumb and index finger. a, their neutral position, and b, the fully flexed position (from Niewoehner et al.).¹

However, they are not as artistic, are much more rugged, and are lacking in variety. They are considered to be the reflection of a mind that has not yet reached modernity.

But is that a fair assessment? Whether the Neandertals were fully modern (like us) or belonged to a different species should be based on the only proper test, reproductive ability. Since the Neandertals are no longer living, the reproductive test is obviously out of the question. But it is certainly not fair to apply an improper and subjective criterion, tools (culture), in assigning the Neandertals to a separate species.

The question that evolutionists have difficulty in answering is: ‘What type of people were the Neandertals?’ Judging from the kinds of animal bones found in association with their fossils as well as from other evidence, the Neandertals were not primitive people as is commonly assumed. They were highly specialized big game hunters, a part of the human family, who lived during the Ice Age. They hunted and lived on the biggest game animals, including mammoths. Juan Luis Arsuaga writes:

‘Erik Trinkaus and Tomy Berger have found a lot of similarity in the distribution of injuries on the bodies of Neanderthals and of rodeo professionals. Today’s daring rodeo cowboys are violently thrown to the ground by horses and steers. They are most often injured on the head, trunk, and arms. Neanderthal hunters were obliged by circumstances to approach large, powerful animals very closely, presumably with the

same results.⁶

If this is indeed who the Neandertals were, to demand that they should have made tools like those delicate Upper Paleolithic ones in order to prove their full humanity is like demanding that a blacksmith do his work using only dental instruments.

However, among evolutionists, the question still is: 'Were the Neandertals capable of making fully modern (Upper Paleolithic) tools had they desired to do so, or if those tools had fitted their lifestyle?' There are three lines of evidence that would answer that question in the affirmative. These three lines of evidence cover the three areas in which the Neandertals have been so heavily criticized: their minds, their bodies, and their culture.

The Neandertal mind: There must be some significance in the fact that the average cranial capacity of the Neandertals was about 150 cm³ more than the average for modern humans. In their discussions of the Neandertals, evolutionists often fail to mention that fact. When they do, they discount it, sometimes claiming that the Neandertal brain was not wired in as complex a manner as the modern human brain. In all of the scientific literature, it would be hard to find a more subjective and unprovable statement.

The Neandertal body: In answer to the question of whether or not Neandertals were capable of making fully modern tools, The *Nature* article we have been referring to, 'Manual Dexterity in Neanderthals', is directed to that question. In 1909 the fossil remains of the first of eight Neandertal individuals were discovered in a rock shelter at La Ferrassie in the Dordogne region of southern France. Studying casts of the finger bones and computer simulations of the hands of the individual known as La Ferrassie I, Wesley A. Niewoehner (California State University, San Bernardino) and his associates from North Dakota State University conclude:

'As there is no significant difference between Neanderthals and modern humans in the locations of their muscle and ligamentous

attachments, there remains no anatomical argument that precludes modern-human-like movement of the thumb and index finger in Neanderthals. The demise of the Neanderthals cannot be attributed to any physical inability to use or manufacture Upper-Palaeolithic-like (Châtelperronian) tools, as the anatomical evidence presented here and the archaeological evidence both indicate that they were capable of manufacturing and handling such implements.⁷

The archaeological evidence Niewoehner and his associates refer to constitutes the third line of evidence, *culture*. This evidence also indicates that the Neandertals were capable of making modern tools. At Arcy-sur-Cure caves, France, the first evidence of jewellery ornaments of bone, teeth, and ivory have been found in association with Neandertal fossils in the Upper Paleolithic.⁷ The importance of this discovery cannot be overemphasized. It will be contested, to be sure. But it is just one of many discoveries that demonstrate that the Neandertals were fully human and were our brave and worthy ancestors.

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How mysterious is the life of a cave?

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*'Because all scientific ideas depend on experimental and observational information, all scientific knowledge is, in principle, subject to change as new evidence becomes available'*¹

This quote is from the teacher's guide to a PBS (Nova) television documentary entitled *The Mysterious Life of a Cave*. The documentary includes breathtaking pictures of what is considered by many the world's most beautiful cave, Lechuguilla, New Mexico. The spectacular photography is riveting. Although the educational film is designed for grades 5–12, it presents what for many is new observational information—information particularly relevant to the speed of speleogenesis. Certainly some of the traditional ideas about speleogenesis, or cave formation, should now be subject to change.

The role of H₂S in cave formation

Focussing on caves in the United States and Mexico, the film explains how it was not solutions infiltrating from the surface of the Earth that carved these caves as asserted in classical speleogenesis. Rather, it was highly acidic solutions rising from underneath the limestone that did the job.

The role of H₂S in speleogenesis has been known for many years. Hypogene caves, that is, caves carved by solutions (mainly hydrothermal) rising from within the Earth (as opposed to caves carved by solutions percolating from the surface), have been previously described in European scientific literature.^{2–4} In fact, H₂S and CO₂ in warm to hot aqueous solutions have formed many labyrinth caves worldwide. Some of them are even mined for their valuable mineral resources.^{5,6} Cave formation has been reported in even more extreme geological conditions, at temperatures between 200 and 400°C