

# Creation Matters

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## Was This How God Did It?

by Barry and Helen Setterfield

*Editor's note: The following article is oriented toward lay readers. Thus, the authors have opted to not include here mathematical formulas and references needed to formally document the development of this theoretical model. Technical additions will be linked when the article is published on the authors' website:*

*([www.setterfield.org](http://www.setterfield.org)).*

**G**od could have created the entire cosmos supernaturally in six days, via one miracle after another. On the other hand, God could have used the very processes He invented to arrange the substances He created into the cosmos we see today. For the sake of argument, let's look at the second option and see where it might lead. We are not denying the possibility of an entire string of miracles, but we are, instead, examining the second possibility: that after God created some kind of material out of nothing, He then used the very processes, which still govern the behavior of matter today, to arrange it into the stars, galaxies, and even our solar system. In this article we are not attempting



*The Bug Nebula, NGC 6302, is one of the brightest and most extreme planetary nebulae known. Description and photo courtesy of NASA. Image credit: NASA, ESA and A. Zijlstra (UMIST, Manchester, UK). A nebula is an interstellar cloud of dust, hydrogen gas, and plasma.*

to present a formal scientific article with minute mathematical detail and referencing. Instead, a general model and idea are being laid out for further examination.

### The Big Bang

The cosmological model most adhered to today centers around two things, the Big Bang and the effect of gravity. The Big Bang was ridiculed from its inception for being too close to the statement we find in the Bible, viz., that God claims to have stretched the heavens. The Big Bang postulates that a singularity suddenly, for some reason, expanded rapidly, forming the universe we see now. In the Bible, God states "*It is I who made the earth and created mankind upon it. My own hands stretched out the heavens; I marshaled their starry hosts.*" (Isaiah 45:12)

This claim, regarding the stretching of the heavens, is made by God twelve times. There appears to be enough evidence in the form of background radiation and

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## George Price: from Evolutionist to Creationist

by Jerry Bergman, Ph.D.

**O**ne of the most important evolutionary biologists of the last century, George Price (1922–1975), by his own admission became a creationist. Of Price's life-long career in science, only seven years were devoted to the study of evolutionary theory. Yet, during "that brief period Price made three lasting contributions to evolutionary theory" which, accord-

ing to Frank (1995), include the:

1. Price Equation, a profound insight into the nature of selection and the basis for modern theories of kin and group selection;
2. theory of games and animal behavior, based on the concept of the

... continued on p. 4

the fact that redshift measurements increase with distance from the earth to support a sudden expansion of 'something' into the universe we see. From there, the Big Bang model assumes that gravity took over, gradually collapsing great conglomerations of dust and other material into stars, galaxies, and other objects.

Because gravity is known to be a weak force, the presumption is that it then took literally billions of years for the universe to take shape. What we would like to question here is not the initial expansion of the universe, which both the Big Bang and the Bible agree happened, but whether it was gravity which took over after that.

We think there is evidence of something much more rapid that happened and which we can experiment with in our labs today. This is plasma, and the idea of a plasma formation of the universe is something that is coming more to the fore in scientific circles. Plasmas obey the laws of electricity and magnetism rather than gravity, which is much weaker and thus slower in the manifestation of its effects. When combined with an earlier, much faster speed of atomic processes, which we think the data also indicate, some form of a plasma model could easily demonstrate how God formed the entire universe in a few, literal, 24-hour days.

### Four states of matter

In school we learned that there are three states of matter: solid, liquid, and gas. A solid is normally a substance with the atoms pretty close together and which exists at a relatively cool temperature. A liquid is that same substance with the atoms usually warmer and in more motion, so they are further away from each other. A gas is the same substance at a higher temperature, with the atoms in a much more energetic state and thus much further away from each other.

In each of these states, however, the individual atoms maintain their form and identity. Each has at least one proton (and often at least one neutron) in the nucleus, or center, and at least one electron associated at a distance. The common physical and chemical picture of the atom shows the electron circling the nucleus. Generally the

number of protons in the nucleus is matched by the number of electrons associated with it.

However, what if these atoms are in such a violent state that the electrons become totally dissociated from the nuclei? The atoms, in this scenario, are no longer atoms as we would know them, but are wildly gyrating nuclei in a turbulent sea of electrons — a plasma, the fourth state of matter. We are all aware of plasma televisions, which are examples of a cold plasma. Our neon lights are lit by plasmas. Our sun is a plasma, as are other stars. When photographs are taken of 'outer space,' we see massive amounts of plasma filaments everywhere. They crisscross each other, forming shapes, structures and patterns that we can imitate in the lab with much smaller plasma filaments.

**When these data are mathematically integrated into the formulas used to determine the amount of time needed for plasma filaments to form the structures of the universe, the results are interesting.**

### Plasma ideas and experiments

In the 1980's some plasma ideas were suggested by Hannes Alfvén and became quite popular for a while. However, they never became a real model for galaxy formation. His work never got beyond the 'exploring ideas' stage. Since then, however, others have developed ideas along similar lines, and the recent book *The Electric Sky* by Donald E. Scott (Mikamar Publishing, 2006) takes a very serious look at the possibility that the universe was formed via plasma filaments instead of gravity.

Anthony Peratt has conducted a number of experiments with plasma filaments in the laboratory. And this is what has caught the interest of a number of people, including us. Plasma filaments in a lab, when brought close together, pinch in the middle. They then begin to take on a series of shapes which are very much like those we see when we look into outer space. They form miniature radio galaxies, miniature quasars, and miniature spiral galaxies, among other things.

In the lab all this can happen in a matter

of seconds. However when this phenomenon is translated and up-scaled to cosmic size, the time for the formation of what we see 'out there' becomes billions of years. So at first glance a plasma model for the formation of the universe doesn't look like it would fit the biblical model at all. That is, unless the processes were faster than (during the creation week), which data from a number of areas, including the redshift curve and the speed of light studies, indicate, in our opinion, to be the case.

When these data are mathematically integrated into the formulas used to determine the amount of time needed for plasma filaments to form the structures of the universe, the results are interesting. The first light from quasars would have appeared half way through the first day of creation, and elliptical cores of galaxies would have formed shortly thereafter. The first stars, or Population II stars, would have been shining by the end of day one. Galaxy spiral arms would have formed by the fourth day, and the stars in the spiral arms of the galaxies, the Population I stars, would have started shining about midway through day four. Our sun is in a spiral arm of the Milky Way Galaxy and would, therefore, have started shining on day four. That is exactly when the Bible says it started shining.

The Bible indicates something very strange, though. It indicates that the earth was formed before our sun started shining. Is that simply a mistake made by ancient men, or is this a possibility? It is not only a possibility if plasma filaments were involved, it would be inevitable.

When plasma filaments are pinched in response to magnetic fields, they often form a 'necklace' around the circumference of the pinched area, which looks like a string of beads. This string is in motion with the 'beads' chasing each other and gradually swallowing each other up until only the largest one remains. When this happens, a new 'necklace' is formed to the inside, with a new series of beads which eventually become one. Then another 'necklace' is formed on the inside of those two, and so on, until all that is left in the center is a shining core. So yes, our earth and all the planets would have formed before the sun, at the center of our solar system, was lit, if the plasma model is telling us what process-

es God used in His formation of the cosmos.

The plasma behavior may also explain why we have certain elements which are predominant in certain planets, and why planets are layered, with the heavier elements at the cores. Although gravity can explain some of this, it fails to explain why the planets we see are so different from each other in composition. We still need more study on the moons, but up to this point, the plasma model is holding.

## Looking at Genesis 1

If we look at Genesis 1, there may be further evidence that we are on the right track with the plasma model. Although Bible storybooks show a nice, pretty, round world at the beginning of creation, that may not be what the first verses in Genesis are telling us. Here are the first two sentences (as taken from the NIV, but any version is fine):

In the beginning, God created the heavens and the earth. Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters.

If we go back to the Hebrew, we find the following: ***In the beginning, created God the heavens and the earth. And the earth was without form and empty and darkness on the face of the deep and the Spirit of God moving on the face of the waters.***

Then, looking at the meanings of the individual Hebrew words, though, we find some interesting things:

**Heavens** – *shamayim* – from an unused root meaning to be lofty or lifted up

**Earth** – *eretz* – meaning ‘that which is firm’

**Without form** – *tohuw* – from an unused root meaning waste, wilderness, confusion, empty

**Empty** – *bohuw* – to be empty or void; vacuous

**Darkness** – *choshek* – darkness, destruction, death, ignorance, from a root meaning black or dark

**Face** (two words are used) – *al* – above, over, against, because of, on, over, through, touching -- many applications; and the second word used is *panim* – the face or the part that turns (many applications), can mean before, against, countenance, edge,

endure, face, forefront, etc.

**Deep** – *tehowm* – an abyss, as a surging mass

**Hovering/moving** – *rachaph* – a primitive root meaning to flutter, move, or shake. HOWEVER, when the Hebrews themselves translated this word, they used the same word that Luke used in Acts 27:27 when the ship was *driven* across the Adriatic. The Greek word is *diaphero*, which means ‘to toss about, to drive up and down, or, literally, to transport.’

**Waters** – *mayim* – water is the primary meaning and other meanings, such as juice and urine, are considered euphemisms.

Considering the choices for the words that were used, and assuming that the Bible is, at the very least, inspired by God, then we have a very real possibility that although the words could rightly mean exactly what the children’s storybooks are saying, there may also have been the intent all along to allow us to understand more as science progressed.

For instance, ‘shamayim’ and ‘eretz’ — heavens and earth — are not necessarily outer space and a little round ball. They could just as easily be referring to space and mass. This space and mass originally existed in a state of confusion, like a wilderness. It was empty of form or any intrinsic pattern. There was no light. However, this wilderness of stuff is referred to as ‘tehowm’ – a surging mass. And the Holy Spirit was a driving force across it. Immediately after that, in verse three of Genesis 1, we hear the words “Let there be light.”

It may be that the original substance, this surging mass, was a churning conglomeration of plasma whose composition of nuclei and electrons was in the same proportion as we have with water. In other words, initial creation would have included both hydrogen and oxygen nuclei, and not just hydrogen nuclei, which the Big Bang model suggests. The initial temperature would have been incredibly high, in agreement with what standard cosmology is suggesting, and both element formation and rapid cooling would have ensued with the expansion, or stretching.

This initial plasma, when driven by the Holy Spirit, began separating into the filaments with which we are now familiar.

Since photons of light are expressed by the snapping back of electrons which are shoved out of their places around the nucleus, the initial light on day one would indicate that the elements were formed very quickly.

Thus, while this beginning plasma model may prove partially or fully incorrect in the long run, it currently appears to be capable of answering many questions the Big Bang model cannot answer, and it is not negated by anything the Bible says. It may, in fact, be suggested, due to some of the vocabulary in the first verses of Genesis 1.

## For further reading

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**George Price**  
...continued from page 1

evolutionary stable strategy; and

3. modern interpretation of Fisher's fundamental theorem of natural selection, Fisher's theorem being perhaps the most cited and least understood idea in the history of evolutionary genetics.

Price's work is seen as a key framework to unify the various mathematical approaches to the study of natural selection (Frank, 1997). It was only toward the end of his intellectual journey that Price focused his "deep humanistic feelings and sharp, analytical mind on abstract problems in evolutionary theory" (Frank, 1995). Frank added that it is unusual for a scientist "to take up a field while in his forties and make significant contributions to the theoretical foundations of that field" (1995).

### Early education

Price attended the University of Chicago, where he earned a B.S. and a Ph.D. in chemistry. He was privileged to work on the Manhattan Project and later worked in medical research at the University of Minnesota. In 1947, he married Julia Madigan,

a union that was blessed with two daughters. Because Price "was a fire-spitting atheist and Julia a devout Christian," conflicts in the marriage existed from the very beginning, yet the marriage somehow lasted eight years (Schwartz, 2001, p. 121). Julia obtained a divorce in 1955.

Price, always a prolific researcher and author, in 1955 published his first article in *Science* in which, inspired by his militant atheism and ardent naturalism, he questioned the quality of the evidence used to demonstrate ESP (extra-sensory perception). He also forayed into popular writing, such as an article published in *Fortune* titled "How to Speed Up Invention." The article described a hypothetical "design machine" that used a graphic display cursor-like pen-light system similar to that which was first used in Macintosh computers, and, later, in Microsoft Windows.

Price also wrote an essay for *Life* titled "Arguing the Case for Being Panicky" that discussed the pitfalls of reducing the U.S. military strength. The article so impressed Senator Hubert Humphrey that the two exchanged dozens of letters about Price's ideas. Later in his career, he accepted a scientific position at IBM, working on developing a mainframe computer and math-

ematical modeling techniques.

### A career shift

In 1966 Price underwent a badly mishandled surgical treatment for thyroid cancer. The botched surgery added to nerve damage which had been caused by an earlier bout of polio, leaving his shoulder partially paralyzed.

After a generous insurance settlement, Price decided to finance yet another career shift. In November 1967, using his insurance money, he moved to London to take advantage of the enormous libraries there. One of the articles that he came across in London was William D. Hamilton's study "The Genetical Evolution of Social Behavior." The article discussed the difficulties of explaining the evolution of behavior that benefits one's fellow organisms, while actually lowering the fitness of the individual manifesting the behavior, such as altruism. The article so inspired Price that he began doing field research. Hamilton is "widely regarded as the most important evolutionary thinker since Darwin" (Schwartz, 2001, p. 120).

Price soon also took an interest in the evolution of unselfish behavior. As Schwartz explained (Schwartz, 2001, p. 120),

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In a ruthless, Darwinian world, human heartlessness is easy to explain. After all, natural selection eliminates the weak and rewards the strong. Unselfish behavior, on the other hand, is baffling. Compassion, kindness, and loyalty ought to be weeded out almost as soon as they arise.

Darwin attempted to explain altruism by arguing that natural selection can act on groups as well as individuals. This idea, now known as group selection, concludes that altruism helps the *group* survive, and it is for this reason selected by natural selection. In *The Descent of Man*, Darwin (1871, p. 166) argued that tribes which “give aid to each other and to sacrifice themselves for the common good, would be victorious over most other tribes.”

Schwartz noted that Darwin “never fully developed his ideas about group selection, and his heirs continue to argue over it.” This idea intrigued Price, who not only studied it, but eventually even lost “interest in securing recognition for his scientific achievement” (Schwartz, 2001, p. 121). Instead he devoted himself to helping his fellow humans, aiding the homeless and elderly in his adopted city of London.

Hamilton totally rejected the notion of group selection, concluding that individual selection was “responsible for all significant evolutionary adaptations, including self-sacrificing behavior” (Schwartz, 2001, p. 123). Hamilton also argued that biologists defined fitness too narrowly. An important factor was what he called “inclusive fitness” that included not just a person’s progeny, but the progeny of the person’s relatives, weighted according to how closely they were related. In short, Hamilton concluded that the survival of *particular genes*, rather than of the individual who carried them, was crucial, an idea that likely influenced Richard Dawkins’ *The Selfish Gene Hypothesis* (Dawkins, 1976; Hamilton, 1996, p. 27).

Price was so inspired with Hamilton’s work that, in March 1968, he wrote to Hamilton. Hamilton concluded that Price’s observations were very perceptive, so he produced two dense handwritten pages in response to Price’s letter. Hamilton wrote that Price’s work was not a new derivation but “rather a strange new formalism that was applicable to every kind of natural

selection” (1996, p. 172). This stimulated Price to work on his idea, producing a paper that “reconceptualized the mathematics of how genes flourish or fade under natural selection, and he had done it with a startlingly simple equation” that could apply to any form of selection (Schwartz, 2001, p. 124).

Price used covariance, a statistical measure of the relationship between two sets of data. Covariance is a statistical evaluation similar to correlation, except that it calculates the parallel rise and fall of variable sets, such as atmospheric pressure and rainfall. Price devised a more accurate way of conceptualizing the relatedness of two factors by the use of “strikingly original” mathematics. In June of 1968, Price decided to take his work to the Galton Laboratory at University College, London, to confer with the experts there.

**The fact that a number of Price’s close friends, many of them eminent evolutionary biologists, evidently accepted him in spite of his being a creationist is of note today when anti-creation and anti-ID opposition is especially strident.**

### **An honorary appointment**

At the lab, he met mathematical geneticist and Weldon Professor of Biometry, Cedric Smith. Smith quizzed him about his work and was so impressed that he introduced him to his department chair and, eighty minutes later, Price had an honorary appointment, an office, and keys. He was back at work. During a visit to New York, Price was introduced to one of the world’s leading evolutionists, Richard Lewontin. Returning to England in early May, Price received a grant from Great Britain’s Science Research Council to fund his work.

Hamilton was soon won over to Price’s ideas, but Price’s paper was rejected by *Nature*, evidently because the referees could not follow the complex math. Price and Hamilton then collaborated and separately submitted papers to *Nature*, first Price’s revised paper on the mathematics of natural selection, then, a week later, Hamilton sub-

mitted a paper that depended on Price’s formula to derive his theory of inclusive fitness. This plan was designed to help Price publish his paper.

As expected, Price’s new paper was again immediately rejected — the editors did not even see it fit enough to send out for review (Hamilton, 1996, p. 175). Conversely, again as expected, Hamilton’s paper was accepted without delay, probably partly because Hamilton was a well-established researcher in this field. According to plan, Hamilton then requested that *Nature* withdraw his paper — because his paper depended upon the “powerful new method” detailed in Price’s rejected paper (Hamilton, 1996, p. 175). The plan worked — *Nature* promptly reconsidered and on August 1, 1970, published Price’s “Selection and Covariance” paper (Price, 1970). Hamilton’s companion paper was published in December of 1970. Frank stressed that it is widely acknowledged that Price’s work allowed Hamilton to develop a far more powerful altruism theory (Frank, 2002, p. 930).

### **From militant atheist to Christian theist**

In the summer of 1970, the forty-seven-year-old Price underwent a religious conversion. He wrote that “on June 7th I gave in and admitted that God existed” (Schwartz, 2001, p. 127). His conversion was, he concluded, a logical necessity from the evidence that he saw before him, which included a series of events in his life. He calculated that the odds of these coincidences occurring was “astronomically low” (Schwartz, 2001, p. 127). Price then began attending the evangelical branch of the Church of England and soon began delving into biblical exegesis, such as trying to reconcile the many alleged discrepancies in the four Gospels.

After his conversion he even attempted to remarry his former wife, Julia, and reunite the family, an attempt that was unsuccessful. He also set out to make amends in his private life, such as apologizing to his eldest daughter for being a poor father when he was a militant atheist. About a year after his conversion, he completed a fifty-page article on chronology, which he believed had resolved several long-standing biblical scholarship puzzles.

Hamilton was impressed by Price’s

theological work, which he encouraged him to publish, but he did not accept Price's arguments for the existence of God. Hamilton attempted to discount Price's arguments for the existence of God by, for example, concluding that if Christ's life fulfilled Bible prophecy, why should one respect Jesus for following a canon that he had to follow? Price responded (quoted in Schwartz, 2001, p. 128),

The question is not whether you like it but whether it is true. What difference does it make whether you approve of it or not? Do you think that is something that I wanted to believe in?

In the meantime, Price continued his evolutionary biology research. Intrigued by the finding that male animals of the same species, although they often fight, rarely fight to the death, Price concluded that they were programmed to retreat from a threat. He sent his article to *Nature* on the last day of July 1968. *Nature* accepted the article on the condition that it be shortened. The reviewer happened to be John Maynard Smith, who saw the potential of Price's idea and wanted to use it in a paper he was writing. The two corresponded and Price became conscious of a "long-running, acrimonious dispute between Maynard Smith and Hamilton" (Schwartz, 2001, p. 129).

The dispute involved Smith's refereeing a paper of Hamilton's that required a major revision, causing a nine-month publication delay. In the meantime, Smith sent a paper to *Nature* using the term "kin selection" and, as a result, received credit for the idea instead of Hamilton. When asked about this later, Smith was defensive, claiming he wasn't trying to steal Hamilton's idea "or I don't think I was, so it wasn't conscious" (quoted in Schwartz, 2001, p. 129).

For this reason Price was skeptical about Smith. The two met, and Price concluded that Smith had learned his lesson—he was scrupulous about crediting Price, even offering to make him a coauthor of a paper that he was then writing. In the fall of 1972, Smith's paper, co-written by Price, was accepted by *Nature* (Smith and Price, 1973). The paper was one of the first to set forth the ideas involving evolutionary game theory.

## Rejection of macroevolution

When publishing articles on evolutionary biology, Price shared with Smith and

others that his articles were about microevolution and did not imply macroevolution, which he did not accept. For example, in a letter to John Maynard Smith, Price noted that he had to make a few changes to accommodate his creationism belief, noting that "I think I found wording that you won't object to, and that won't shock *Nature's* readers by making them suspect what I believe" (quoted in Schwartz, 2001, p. 130). Price was very aware that his rejection of macroevolution could cause problems and, for this reason, as he noted in this letter, he had to stay in the closet to survive in his career. The fact that a number of Price's close friends, many of them eminent evolutionary biologists, evidently accepted him in spite of his being a creationist is of note today when anti-creation and anti-ID opposition is especially strident.

From this point forward, Price's recognition in the academic world continued to increase. Five years after their New York meeting, Richard Lewontin wrote Price, confessing that he had "come around to understanding the work you have been doing, which I was too stupid to appreciate when you first showed it to me" (quoted in Schwartz, 2001, p. 132). Other eminent scientists, including population geneticist James Crow, wrote to Price explaining that, although he had been slow to appreciate the significance of Price's work, he now appreciated it.

During this time, Price had a number of financial as well as other problems, including the incessant pain in his damaged shoulder, and residual problems from his earlier bout with polio. He was found dead under suspicious circumstances in his tenement on January 6, 1975. Although critics alleged that it was suicide, no suicide note was left, nor was there any evidence that he had talked about suicide with friends, family, or anyone else, as is common in suicide cases. He had just recently visited the Hamilton family for about a week and was in good spirits when he left.

Thirty years after Price's death, the importance of his work is increasingly being recognized by biologists. Especially are his "lasting contributions to evolutionary theory" now being properly acknowledged (Frank, 1995, p. 373). Furthermore, Price's equations have played an important role in the work on altruism by both David Sober and David Sloan Wilson.

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# Rare Dinosaur Excavated by FACT

by Otis E. Kline, Jr. and T.P. Beh

**O**n a Sunday afternoon in September 2006, Jonathan Schaffer, an Iraq War veteran, along with several others, was looking for fossils during a “dig-for-a-week” opportunity on the Baisch Ranch in the Hell Creek Formation east of Glendive, Montana. As he was walking along a dry creek bed, he came across some fossil “float” (loose pieces of bone on the ground surface), which led to bones eroding from approximately six feet up the bank.

This modest beginning resulted in the excavation of one of the most complete *Thescelosaurus* dinosaur skeletons ever found. This find was especially providential for the Foundation Advocating Creation Truth (FACT), which is currently building the Glendive Dinosaur & Fossil Museum.

Following the initial discovery, the ranch owner, Justin Baisch, a strong supporter of our museum, requested an evaluation of the find. Subsequently, FACT obtained the rights to excavate, prepare (if we wanted), and sell the fossil, with ownership shared by the ranch and the museum. Because the bones were located in a creek bed that drains several hundred acres of badlands, we felt that excavation should start as soon as possible to minimize the possibility of additional erosional damage to the bones.



Figure 1. Photo of Otis Kline, Mike Triebold, and the *Thescelosaurus* field jacket with partially-prepped foot.



Figure 2. View of field jacket containing posterior portion of FACT's *Thescelosaurus* skeleton, showing backbone, ribs, right femur, pelvis, left foot, and detached tail.

The dinosaur, nicknamed Jonathan after its discoverer, was found lying on its back with a slight tilt to the right. Part of the spine, ribs, and one shoulder blade (scapula)

were exposed. With the help of some hardy volunteers, over 10 feet of overburden was removed during September, and I did some preliminary excavation of the skeleton, jacketing and removing the creature's intriguing, five-fingered left hand. With no skull visible, the hand gave rise to the possibility that we had a rare *Pachycephalosaurus* (thick-headed dinosaur).

Actual excavation started in October, with the assistance of Terry Beh, who had helped supervise one of our creation dinosaur digs earlier in the year. The two of us worked for about eight days, at which time the fossil was removed from the site and taken to the museum, just before Montana's first snowfall of the season.

Of course, we had hoped to find the entire skeleton, especially the skull. However, once the existing skeleton had been fully exposed, it became obvious that the animal wasn't all there. Indeed, missing were the head, neck, most of the scapulas, right arm and hand, left humerus, and the last few feet of the tail. The left arm and hand were there, along with the rest of the bones — ribs, vertebrae, limbs, ischium, pelvic girdle, etc. — going back through the tail.

Having come to rest thousands of years ago, perhaps following its demise in Noah's flood, the creature's right leg was extended out and away from the body in a fairly

**Thescelosaurus** (“Marvelous Lizard”) was a bipedal, plant-eating, ornithischian (bird-hipped) dinosaur from the late Cretaceous. The type species is *T. neglectus*. Measuring about 10 to 13 feet long and 3 feet tall at the hips, it probably weighed under 700 pounds. It had a small head, bulky body, short arms, five-fingered hands, four-toed feet, a long, stiff tail supported by ossified tendons, and was most likely herbivorous, but possibly omnivorous. Aside from the long narrow beak, the skull also had heavy, boney eyebrows. One complete and eight incomplete skeletons have previously been found in Wyoming, Montana, South Dakota, and Alberta, Canada.

Anonymous. n.d. *Thescelosaurus*. *EnchantedLearning.com*, [www.enchantedlearning.com/subjects/dinosaurs/dinotemplates/Thescelosaurus](http://www.enchantedlearning.com/subjects/dinosaurs/dinotemplates/Thescelosaurus) (accessed 24 March 2007).

**Pachycephalosaurus** (“Thick-headed Lizard”) was also a bipedal, plant-eating, ornithischian dinosaur of the late Cretaceous. With an estimated length of 12-15 feet, it had short fore limbs with five-fingered hands, four-toed feet, a bulky body, and a heavy, rigid tail with ossified tendons. The mouth was beaked, and it is believed to have had binocular vision and an acute sense of smell. “Pachys,” as they are commonly known, are distinguished by their heavy, dome-shaped skulls that were up to 10 inches thick and covered with spikes or “bumps.” Fossils of this dinosaur have come from Montana, South Dakota, and Wyoming; however, no complete or mostly-complete skeletons have ever been found.

Anonymous. n.d. *Pachycephalosaurus*. *Answers.com*, [www.answers.com/topic/pachycephalosaurus](http://www.answers.com/topic/pachycephalosaurus) (accessed 24 March 2007).  
Anonymous. n.d. *Pachycephalosaurus*. *Wikipedia*, <http://en.wikipedia.org/wiki/Pachycephalosaurus> (accessed 24 March 2007).

“natural” position, with his left leg pushed close to the body. The femur was out of place, pointing toward where the left arm would have been, with the tibia and fibula on top.

The exposed five tail (caudal) vertebrae, with chevrons lying compressed by the overburden, gave a second clue to the identity of the dinosaur—horizontal striations at the ends of each vertebra. Noticing these grooves during her periodic visits to the dig site, Marge Baisch, the ranch owner’s mother, went home, looked through her research material, and told us she felt it was either a *Pachycephalosaurus* (Pachy) or a *Thescelosaurus*, as only their vertebrae possess such markings.

The following day’s excavating revealed more of the tail, which was trending vertically up the hill, and more striations. Then, to our surprise, the tail came to an abrupt end, with the last two vertebrae twisted around 180 degrees! Why was there no more tail, and why were the vertebrae turned like that with a completely clean break? Had the creature’s extremity (not to mention its other missing parts) been devoured by another dinosaur, did it get pinched off somehow in transport, or was it whipped around and lost in the violent turbulence of the raging Flood? Perhaps, when the skeleton is fully prepared, we may find out.

What remained of the skeleton was then removed in three plaster field jackets—the right tibia, fibula, and complete 4-toed foot (three main toes with the fourth high and behind) in one; the second included the last 23 inches of the tail; and the third held the main body, complete left leg and foot, the right femur, and a few tail vertebrae.

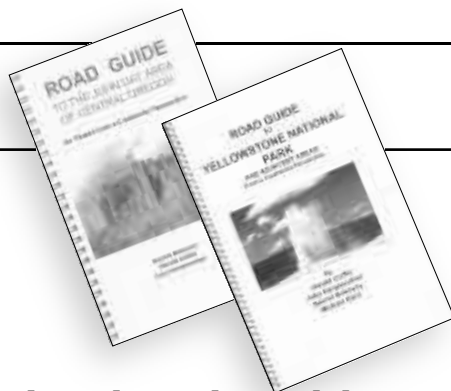
Though Marge guessed what we had was a *Thescelosaurus*, Terry and I had high hopes it would turn out to be a Pachy. Both dinosaurs are found in the Hell Creek Formation, are bipedal, have similarly sized skeletons, possess five fingers and four toes, and exhibit vertebrae with grooves or lateral surface striations. However, of the two, Pachys are much more rare and valuable, with only a partial skull and a few bones previously found, most of them by Mike Triebold of Triebold Paleontology in Woodland Park, Colorado.

Anxious to learn what we had, I contacted Triebold Paleontology for assistance. Mike offered to prep enough of the fossil for positive identification, at no cost. Not only had Mike previously excavated the most complete skeleton of a Pachy to date, he also has had extensive experience with thescelasaurs. Just after Thanksgiving, I transported the skeleton to Mike’s museum for a “mini-prep.” Removing the field jacket is always a tense moment, since one never

knows how well the fossil survived the removal procedure and, in this case, a 600-plus-mile trip over wintry roads. We were blessed to find that the bones had come through in great shape, with only one small crack.

After some initial cleaning, a positive identification was made, proving Marge right. While the skeleton turned out to be that of a *Thescelosaurus*, instead of a Pachy, it is a very large specimen and may actually be *T. garbanii*, the larger and rarer of the two known species. Triebold Paleontology, which now owns the dinosaur, plans to have it fully prepped later this year. They will also be making a cast of it (with head and other absent parts), along with some other fantastic fossil displays, for the Glendive Dinosaur & Fossil Museum, which we hope to open before the end of the year.

Needless to say, as the ground thaws and firms up here in Montana, I’ll continue looking for the skeleton’s actual head and neck, or at least excavate enough to know if they’ve been totally eroded away. For more information on our work, visit our Web site at [www.creationtruth.org](http://www.creationtruth.org).



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# Creation Fossil Hunting Opportunities

*Editor's note: This information was compiled by T.P. Beh. A listing here does not necessarily imply endorsement by the Creation Research Society.*

## **Creation Evidence Museum, Texas — Carl Baugh**

**What/Where:** Dinosaur and footprint excavations on the Paluxy River.

**Dates:** July 2 – 6, 2007, 8:00 a.m. to 3:00 p.m. each day.

**Cost:** \$10 per day for ages 14 – adult and \$5 per day for ages 6 – 13. Money is due each day of the dig in which you participate (no children allowed ages 5 and under).

**Contact:**

Creation Evidence Museum

Glen Rose, Texas 76043

254-897-3200; [www.creationevidence.org/excavations/2007dig](http://www.creationevidence.org/excavations/2007dig)

## **FACT Dinosaur Digs, Montana — Otis Kline**

**What:** T-rex, Triceratops, Hadrosaur, Thescelosaurus, Pachycephalosaurus, etc.

**When:** Weekdays from May thru August; everything from half-day to five-day digs.

**Cost:** Weekly Rate — \$750 per participant (special family and group motel rates are available for five-day digs.) One-day digs are \$100 for ages 12 and up, \$50 under 12. Half-day digs are \$75 for those 12 and up, \$35 under 12.

**Where:** Glendive, Montana on 37 acres of fossil-rich Hell Creek Formation. Headquarters for all activities is the Glendive Dinosaur & Fossil Museum.

**Contact:**

FACT

P.O. Box 684

Glendive, MT 59330

406-377-1411; [www.creationtruth.org](http://www.creationtruth.org)

## **Adventure Safaris, Dino Dig South Dakota — Russ McGlenn**

**What:** Edmontosaurus, Hadrosaur, Triceratops, Sauropod, etc.

**When:** June 11–15, 18–22, 25–29

**Cost:** Before May 1, \$875 per family, \$695 for individuals, \$295 for students. After May 1, \$975 per family, \$725 per individual, \$350 for students.

**Where:** Near Lemmon, South Dakota

**Contact:**

Adventure Safaris

1448 W. Sonya Ln.

Santa Maria, CA 93458

805-925-9750; [www.adventuresafaris.org](http://www.adventuresafaris.org)

## **Creation Studies Institute, Florida — Tom DeRosa**

**What/Where:** Dinosaur Dig in Montana (in association with FACT)

**When:** July 23-27 or July 30-August 3, 2007

**Cost:** \$950 per person; \$100 per person discount, if paid by May 14<sup>th</sup>.

**Contact:**

Creation Studies Institute

1001 West Cypress Creek Road Suite 220

Fort Lauderdale, FL 33309

954-771-1652; 1-800-882-0278; [www.creationstudies.org](http://www.creationstudies.org)

## **Creation Adventures Museum, Florida — Gary Parker**

**What:** One-day Fossil Hunting Canoe Trips (\$25); Creation Adventure Weekend Excursions (\$50 per adult, \$30 per child over 4, children under 4 free, maximum \$175 per family). Ice Age fossils, sharks teeth, etc.

**When:** Available by appointment: Wednesday morning through Thursday noon, Saturday morning through Sunday noon (devotional on Creation topic included), Friday evening through Saturday evening.

**Where:** Peace River, Arcadia, Florida

**Contact:**

Creation Adventures Museum

1220 W. Imogene Street, Arcadia, Florida, 34266

863-494-9558; [www.creationadventuresmuseum.org](http://www.creationadventuresmuseum.org)

## **Southwestern Adventist University Dinosaur Project**

**What:** 2007 Expedition — Excavation and Taphonomic Research in the Lance Creek Formation of eastern Wyoming — Triceratops, Hadrosaur, T-rex, etc. Dig for one day or for one month (for college credit).

**Dates:** Thursday, May 31 through Friday, June 29

**Cost:** Varies; however, dig rates run \$34 per day-first week, \$21-second week, \$14-third week and \$0-fourth week. (See Web site for thorough information.)

**Where:** Hansen Ranch, Newcastle, Wyoming

**Contact:**

Dr. Art Chadwick

Department of Geology

Southwest Adventist University

Keene, TX 76059

800-433-2240; <http://dinodig.swau.edu>

## **Creation Science Association for Mid-America, Missouri**

**What:** Offers 17 Family Creation Safaris in 2007, including: Western Kansas Chalk & Fossil Beds (May 26-28) and Fossils & Rocks of Kansas City (Sept. 29).

**Cost:** CSA does not charge for Creation Safaris, though some trips have costs associated with them. Safari Detail Booklet available.

**Contact:**

CSA

22509 State Line Road

Cleveland, MO 64734

816-618-3610; [csahq@juno.com](mailto:csahq@juno.com)

## **Northwest Creation Network**

A good source of listings for creation Adventures & Field Trips

**Contact:**

Northwest Creation Network

23208 55th Ave W.

Mountlake Terrace, WA 98043

206-465-1635; [www.nwcreation.net/adventures](http://www.nwcreation.net/adventures)

## What Are Creationists Thinking about ...?

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## All by Design

by Jonathan C. O'Quinn, D.P.M., M.S.

## To Each As Needed

**T**he creationist viewpoint holds that all living things were created deliberately according to kinds. There is no room in this thinking for chance. To this end, it follows that each kind of living organism is endowed with precisely the abilities needed for its survival.

The common bumblebee is just such an example. Bumblebees expend quite a bit of energy as they fly in search of flower nectar, keeping their bodies warm through muscle activity and by seeking warmer feeding grounds. These insects have a special ability that imparts a survival advantage, particularly when the weather is cool. Bumblebees have the ability to do something that people may take for granted, but which is remarkable for insects — the ability to learn and adapt behavior accordingly.

For example, if purple flowers happen to be warmer than, say, pink flowers by 8°C or more, these bees learn to make an asso-



ciation between the color purple and warmth, exhibiting a significant preference for the purple flowers. If the pink flowers are warmer, the bumblebees learn to target the pink flowers instead of purple flowers. Bumblebees show no preference for flowers

of either color when there is no significant temperature difference.

By learning to select warmer flowers, bumblebees can expend less energy maintaining their body temperature and spend more of their valuable energy gathering food. The capacity of bumblebees for such behavior adaptation offers a small but significant testimony to the planned creation of life on this planet.

### Bibliography

Dyer, A.G., H.M. Whitney, *et al.* 2006.  
Bees associate warmth with floral colour. *Nature* 442:525