

# Much gray area in debate on world's birth

## 'Creationists' argue the six days, but they all believe in a creator

By William R. Wineke  
Wisconsin State Journal

The December issue of Popular Mechanics was a first: Its cover story, illustrated with a rendering of Noah's Ark, endorsed various scientific "proofs" of the Bible's accuracy.

The story drew lots of mail, some from readers outraged that the magazine took the biblical story seriously and some from those outraged that anyone would question the Bible's accuracy.

More than anything, the story and the response it provoked demonstrated that the age-old debate between science and religion is back in full voice.

And, if you think all conservative Christians agree on how the world was created, think again.

Their views range from those of Pope John Paul II, who in an October message to the Pontifical Academy of Sciences said that "fresh knowledge leads to the recognition of the theory of evolution as more than just a hypothesis," to those of the "Young Earth" proponents of creationist theory who argue that humans and dinosaurs once shared the earth.

Young Earth theorists say the world was created in six days, period, contrary to "Old Earth" creationists who concede that a thousand ages might correspond to a day in God's sight.

Despite their differences, cre-

ationists do share one belief: that a supernatural power directs, in some way, the universe.

Professor Phillip Johnson, of the University of California Law School, is one of the movement's best-known spokesmen.

"The term 'creationist' causes endless confusion," Johnson says in an introduction to his Internet home page. "Literally, it means only that there is a creator as opposed to a purposeless and undirected process of evolution."

The disagreement among creationists came into focus in November when about 160 academics from 98 colleges and universities attended a Biola University conference on "Intelligent Design." The attending Christians accept much of the general idea of evolution, but argue that it is unlikely that chance occurrence could have created the complex life forms that now exist.

But Larry Vardiman, of the Institute for Creation Research Graduate School, El Cajon, Calif., insists these Intelligent Designers are soft on the Bible.

"My main discomfort with the general position of the conference participants continues to be the lack of reliance on the literal statements of scripture and the construction of alternative models of origin which involve long periods of years," he told Christianity Today magazine.

"One thing is absolutely true in

## A conservative columnist has say in evolution debate

If there weren't enough confusion in the evolution debate between religionists and scientists, now newspaper columnists are entering the fray.

Cal Thomas, a religious conservative whose column often runs on the opinion pages of the Wisconsin State Journal first took Pope John Paul II to task for endorsing evolution.

The pope, Thomas said, was moving in the direction of a "materialistic world view that is at the heart of communism...."

Then, on Jan. 19, in a column printed in the State Journal, Thomas announced that the pope had been mistranslated and that the pontiff did, indeed, believe in God.

What the pope really meant, Thomas concluded, is that there are actually several competing theories of evolution.

Finally, Andrew Petto, Madison, editor for the National Center for Science Education, weighed in on the pages of last Sunday's paper, saying there is only one theory of evolution — that all living things have ancestors in common — but there are competing hypotheses about how all this came about.

William W. Wineke

this debate and that is that, whatever side you take, it is based on your own faith," notes the Rev. Richard Sisson, pastor of Madison's Gateway Church.

One of the nation's most respected scholars of the creationist debate is Professor Ronald Numbers, who teaches the history of science at UW-Madison.

In a 1992 book, "The Creationists: The Evolution of Scientific Creationism," Numbers notes that the vehement defense of six-day

creation is a relatively new phenomenon.

"By the late 19th century even the most conservative Christian apologists readily conceded that the Bible allowed for an ancient earth and pre-Edenic life," Numbers asserted.

"With few exceptions, they accommodated the findings of historical geology either by interpreting the days of Genesis 1 to represent vast ages in the history of the earth (the so-called

day-age theory) or by separating creation 'in the beginning' from a much later Edenic creation in six literal days (the gap theory)."

In fact, Numbers continued, the late William Jennings Bryan, the often ridiculed defender of the Bible in the Scopes Monkey Trial, saw the six days of creation as "geological ages" but drew the line at accepting that humans are descended from apes.

Many of the early creationists also were willing to accept such biblical stories as the flood of Noah as being local, rather than worldwide events, Numbers wrote.

In the aftermath of World War I, however, religious conservatives began to rethink their "live and let live" attitude toward evolution.

Again, Bryan was a symbol of the change, Numbers asserted.

"The war... exposed the darkest side of human nature and shattered his illusions about the future of Christian society. Obviously, something had gone awry and Bryan soon traced the source of the trouble to the paralyzing influence of Darwinism on the human conscience."

Today, the Young Earth theologians are in the ascendancy and they use the tools of technology to present what they consider to be a scientific case.

To buttress their claims, many draw on unlikely sources.

Immanuel Velikovsky, who wrote "Worlds in Collision" in 1950, argued that many of the "miracles" in the Bible could be explained by catastrophic events surrounding the approaches of

Mars and Venus to Earth.

More recently, astronomer Walter Alvarez argued that the age of dinosaurs was brought to end when a comet smashed into the Earth, changing its climate.

And, most recently, Harvard paleontologist Stephen Jay Gould used fossil records to argue that, rather than evolving slowly, the history of life on earth has been characterized by the rapid occurrence of species and equally rapid extinction.

None of these men argued a Christian position — but the creationists seized upon their writings as scientific evidence that much of the Earth's history was a story not of evolution but of external actions changing everything. From that, they argued, it isn't much of a jump to say God is in charge of external actions.

Today, many Young Earth creationists are seeking to create a new science to replace science based on evolution.

They are seeking scientific evidence that fossils were created by the great flood of Noah, rather than deposited slowly over hundreds of millions of years.

And, as the Popular Mechanics report illustrates, many researchers are looking for historical evidence of Noah himself.

One of them, John Woodmorappe, wrote a book about the flood, "Noah's Ark: A Feasibility Study," which uses a computer database to determine that the fabled ark carried 7,877 pair of animals that weighed a total of 411 metric tons and consumed more than 4 million liters of fresh water.

# The theory of evolution — it won't stop evolving

## The big question is: What drives evolution?

By Ron Seely  
Science reporter

If Charles Darwin had known the uproar he would cause by publishing his theory of evolution, he might have chosen to stay permanently aboard the HMS Beagle, the research ship on which he sailed for five years, gathering the data for his revolutionary theory.

Darwin published "On the Origin of Species by Means of Natural Selection" in 1859. He started his book quietly enough.

"When on board the HMS Beagle," Darwin wrote, "I was much struck with certain facts in the distribution of the organic beings inhabiting South America, and in the geologic relations of the present to the past inhabitants of that continent."

Soon after his book was published, Darwin was dubbed "the most dangerous man in England" by religious fundamentalists. His reputation among them has little improved.

But what of the science of evolution?

Rare is the scientist today who does not accept the basic premise of Darwin's theory — that all forms of life are descended from a common ancestor and that evolutionary change in plants and animals is accounted for by natural selection.

Yet the field of evolutionary science today is bubbling with as much ferment as that mysterious primordial puddle in which the first living creature is supposed to have been cooked up some 3 1/2 billion years ago. Scientists today are busy trying to understand everything from the pace of evolution to the genetic mechanisms that control change.

"Most biologists do view the fact of evolution as being established," said Karen Steudal, a UW-Madison zoologist who studies limb design in primates and early hominids. "The interest now is in what drives evolution. How does it happen?"

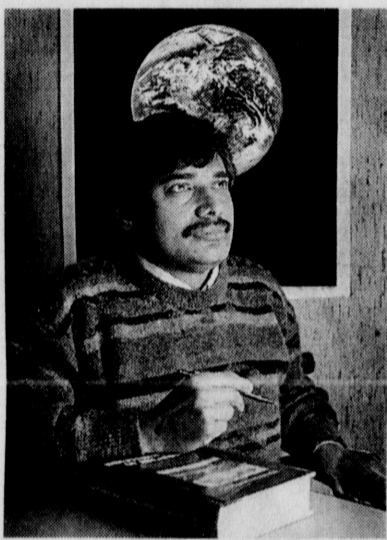
Madison is particularly rich with scientists of all stripes who are studying how evolution works.

On the UW-Madison campus, researchers such as Dana Geary, who studied with the famous paleontologist Stephen Jay Gould at Harvard, delve into the question of whether evolution happens in fits and starts, as Gould has theorized, instead of gradually as Darwin envisioned.

Developmental biologist Sean Carroll uses powerful microscopes to better understand the genes that control the evolution of creatures like fruit flies and butterflies and to help fill in some of the strange evolutionary gaps that riddle the fossil record.

And, off campus, a renegade molecular biologist named Perianan Senapathy — one of those rare scientists who doesn't believe Darwin — has come up with a completely new idea about the origin and evolution of life.

They're all proof that evolution, while viewed as fact by most of sci-



Molecular biologist Perianan Senapathy disagrees with Darwin's theory of evolution. Senapathy has published his own theory of life's origins, but it has gained little acceptance.

ence, is still an idea that raises as many questions as it answers.

Geary, a paleontologist in the UW-Madison's Department of Geology, is perched on the changing, cutting edge of evolutionary science. She works in an area that opened in the 1970s when Gould and Niles Eldredge, curator in the Department of Invertebrates with the American Museum of Natural History, gave Darwin's theory a new and controversial twist. Evolution, they theorized, happens in furious spurts of activity and not in the gradual way that Darwin thought. In fact, the theory holds, organisms and their environments change hardly at all for periods lasting millions of years and then change drastically after periods of upheaval — after mass extinctions, for example.

The theory is called "punctuated equilibria" and it helped explain some of the thornier mysteries posed by the fossil record — the veritable zoo of new creatures that evolved over about 10 million years during the Cambrian period, for example. This burst of activity about 543 million years ago produced nearly every major branch in the zoological tree.

Geary, working in the dried-up bed of an ancient lake in Hungary, has been studying what might have driven the changes that happened during the periods of great evolutionary activity.

By studying the ancient lake bed — its sediments and salinity as well as the pollen record at the lake's edges — she is hoping to piece together a more detailed picture of the environment of that time. Then she'll compare environmental changes to the lake's fossil record.

"We're trying to be as precise as possible about the timing of the changes," Geary said. "How did the evolutionary changes relate to the environmental changes?"

While scientists like Geary study the visible record of evolution, biologists such as Sean Carroll look to the nearly invisible world of the gene to help explain how living creatures have evolved.

Working with a variety of creatures — including Australian velvet worms that are cousin to one of those Cambrian beasts called "Aysheia" — Carroll is revealing the role that genes play in evolution.

Last year was a prolific one for Carroll. He and his researchers showed that fruit flies and brine shrimp use genes in the same way to make limbs. The finding pointed to a common ancestor for arthropods, the largest and most diverse group of invertebrates. It's something scientists have long suspected even though there has been no fossil evidence. Now, Carroll has helped fill in that gap with molecular data.

Most recently, Carroll used the techniques of neurosurgery to manipulate genes and shrink and enlarge the distinctive eyespots on the wings of the *Bicyclus anynana* butterfly. It was a momentous accomplishment, according to the editors of the British journal *Nature*, and showed in shocking fashion that genetic changes can come rapidly; Carroll and his staff were able to affect change in over about 20 generations of the butterfly.

There is room in all of this activity, apparently, even for those scientists who don't believe Darwin. Perianan Senapathy, an Indian-born molecular biologist who did research at the National Institute of Health and the UW-Madison, has published his own theory of how life originated and evolved — a 635-page opus called "The Independent Birth of Organisms."

Senapathy, who now owns a genetics research firm on Madison's West Side called Genome International, believes he has proven through elaborate computations that genetic material in primordial pools left over from the formation of Earth combined randomly to produce complex organisms. The theory, he said, solves one of the greatest biological mysteries — that is, the sudden and unexplained appearance of cells with an organized nucleus.

Senapathy's theory has yet to catch on. One UW-Madison geneticist who has read the book spurned the theory as "creationism" in the guise of science.

Senapathy denied he is a creationist and said his theory is backed by scientific research that can be read in his book.

Meanwhile, Darwin's place as a pioneering hero in science remains sound, even though scientists still scratch their heads over some of his ideas.

"So far, evolution has really stood the test of time," said geneticist Spritz.

### WHAT IS CREATIONISM?

"The term, 'creationism,' causes endless confusion. Literally, it means only that there is a creator, as opposed to a purposeless and undirected process of evolution."  
— Professor Phillip Johnson, leading creationist.

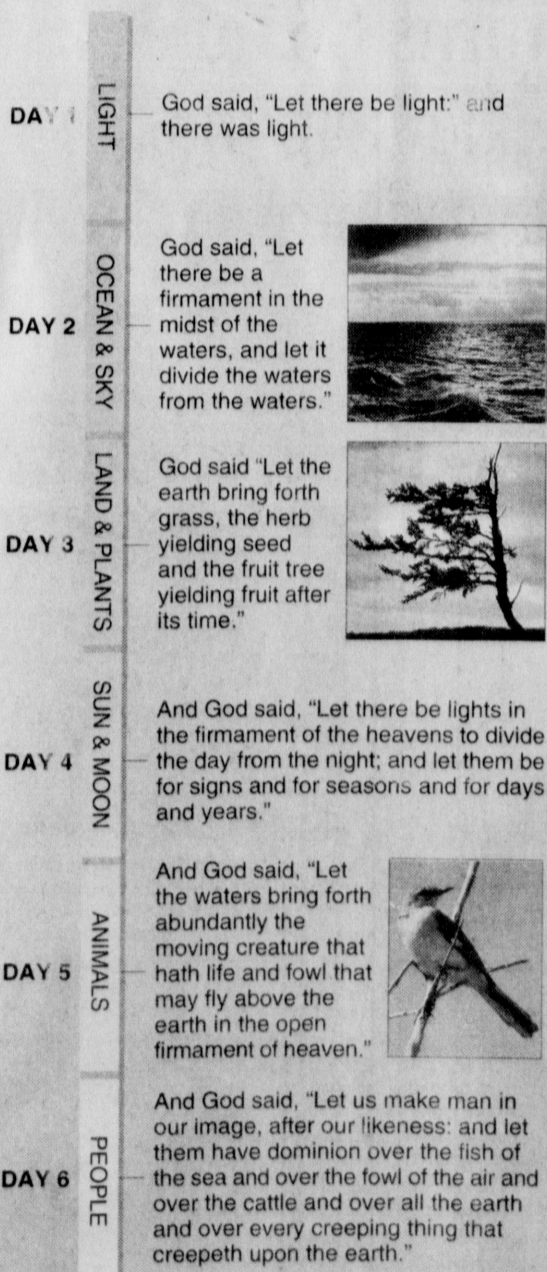
#### KEY IDEAS:

- Creation by design rather than chance
- Evolution blamed for decline in civic virtue
- Marshalling of scientific evidence to support biblical views

#### QUESTIONS OF A CREATIONIST:

- Was the world really created in six days, or could a day equal a "thousand ages" in God's sight?
- Did the six days of creation come at the beginning of time, or could eons have passed before Adam and Eve were created?
- Were mass extinctions and the creation of fossils due to Noah's flood some 4,500 years ago?
- Should Christians look to science to "prove" the Bible or should they take the Bible's teachings on faith?

### CREATION TIME LINE



SOURCE: King James version of the Bible, Time magazine, Biology by Raven and Johnson, and State Journal research.

### WHAT IS EVOLUTION?

"Evolution may be defined as change in the genetic composition of a population through time."  
— Encyclopedia Britannica

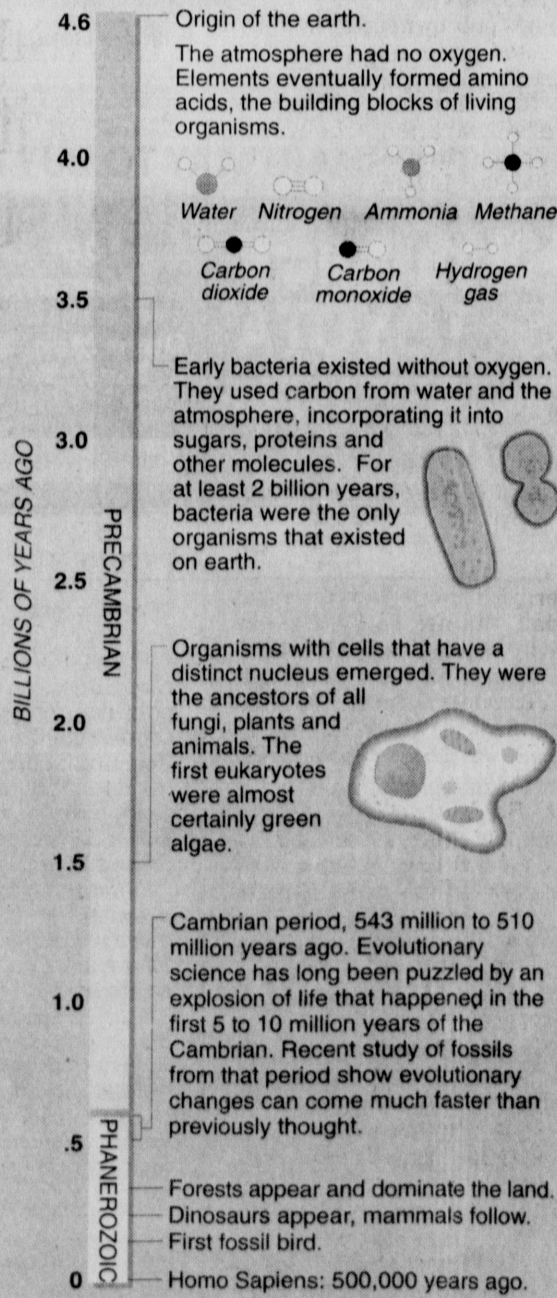
#### KEY IDEAS:

- Descent of people from a common, non-human ancestor.
- Survival of the fittest
- Scientific exploration as a basis for truth.

#### QUESTIONS OF AN EVOLUTIONIST:

- Has life "evolved" slowly over the eons, or did periodic catastrophes shape the conditions of evolution?
- Does evolution lead inevitably to greater complexity or is evolutionary change a random process?
- Are there "missing links" that could repudiate the evolutionary theory?
- Where will it all end?

### EVOLUTION TIME LINE



WSJ graphic/LAURA SPARKS

## Evolution

Continued from Page 1A

In the world of religion, the battles are equally interesting.

Most liberal religionists accept the theory of evolution. But conservative religion is, increasingly, being split between "Young Earth" advocates, who believe the world was created fewer than 10,000 years ago by a God who acted in six days, and "Old Earth" believers, who accept it may have taken millions of years for life to evolve but insist God is behind the process.

Most recently, the Old Earth philosophy has been renamed "intelligent design."

The believers of intelligent design join hands with Pope John Paul II, who recently issued a statement insisting science uphold the role of God in creation, but who also acknowledged evolution has scientific credibility.

What it all shows, finally, is that these great debates about our origins are more than empty intellectual exercises. They touch us all personally. And they are a big part of what defines our humanity.

We are, after all, the only creatures on Earth — as far as we know — who have been able to wonder about such things. Maybe the most important thing isn't that somebody be right or wrong but that we ask the questions to begin with.