



Was Life Created?





What do you believe?

Many religious fundamentalists believe that the earth and everything on it was created in six 24-hour days, just a few thousand years ago. Some atheists would have you believe that God does not exist, that the Bible is a book of myths, and that all life is the product of random, undirected events.

The majority of people hold views that are somewhere between these opposing ideas. The fact that you are reading this brochure likely indicates that you are one of them. You may believe in God and respect the Bible. But you may also value the opinion of highly trained and influential scientists who do not believe that life was created. If you are a parent, you may wonder how to answer your children when they ask questions about evolution and creation.

What is the purpose of this brochure?

It is not the purpose of this material to ridicule the views either of fundamentalists or of those who choose not to believe in God. Rather, it is our hope that this brochure will prompt you to examine again the basis for some of your beliefs. It will present an explanation of the Bible's account of creation that you may not have previously considered. And it will emphasize why it really does matter what you believe about how life began.

Will you trust the claims of those who say that there is no intelligent Creator and that the Bible is unreliable? Or will you examine what the Bible actually says? Which teachings are worthy of your trust, your faith: those of the Bible or those of evolutionists? (Hebrews 11:1) Why not review the facts?

Cover: Beach and reef: © Digital Vision Ltd/age fotostock





Contents

PAGE 4
The Living Planet

PAGE 11
**Who Designed
It First?**

PAGE 18
**Evolution—Myths
and Facts**

PAGE 24
**Science and the
Genesis Account**

PAGE 29
**Does It Matter
What You Believe?**

PAGE 30
Bibliography

**This publication is not for sale.
It is provided as part of a worldwide
Bible educational work supported by
voluntary donations.**

**To make a donation, please visit
donate.jw.org.**

Unless otherwise indicated,
Scripture quotations are from the
modern-language *New World
Translation of the Holy Scriptures*
—With References.

Was Life Created?
December 2022 Printing

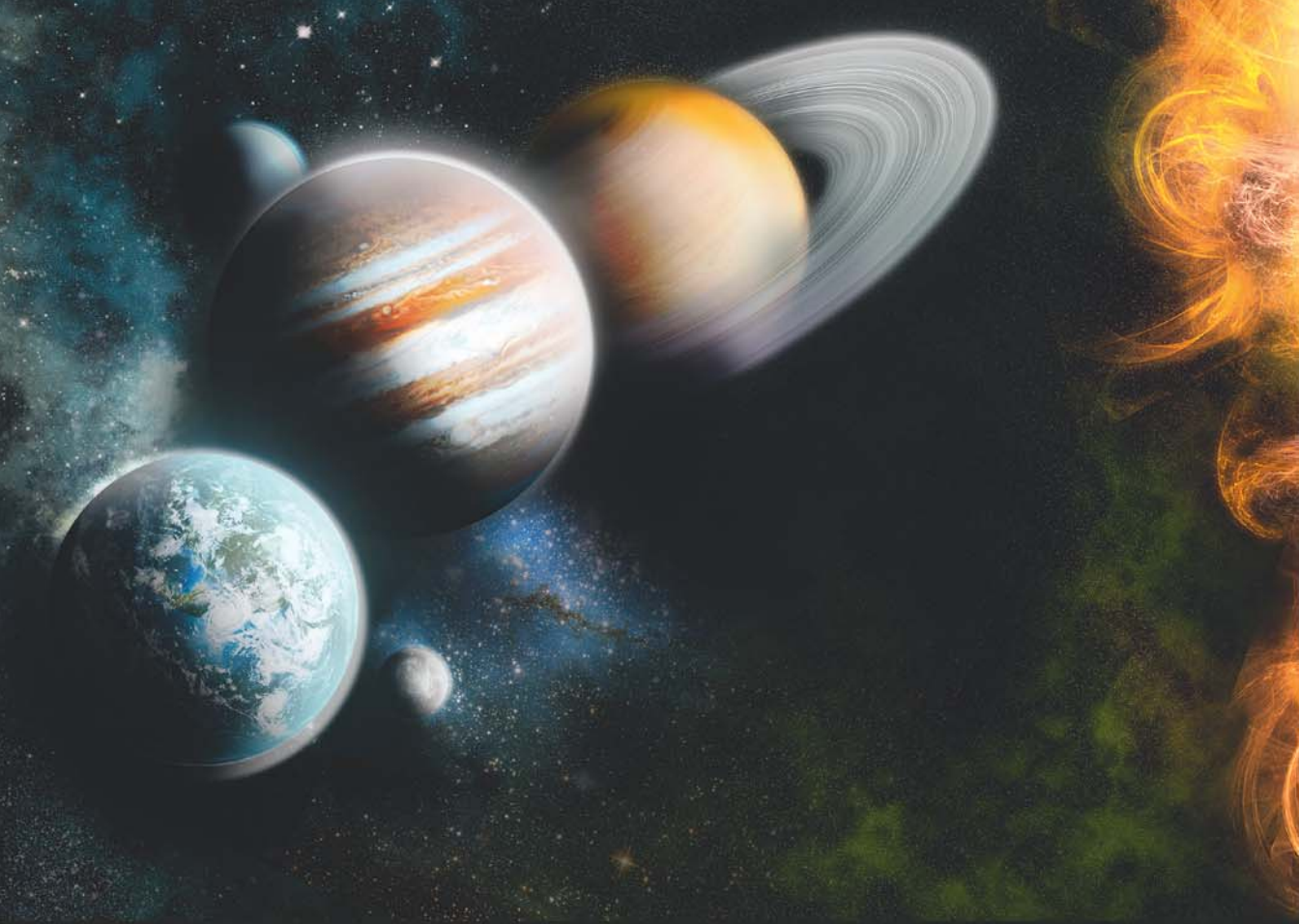
English (lc-E)

© 2010
WATCH TOWER BIBLE AND TRACT
SOCIETY OF PENNSYLVANIA

Publishers

Watchtower Bible and Tract Society of
New York, Inc., Wallkill, New York, U.S.A.

Made in U.S.A.

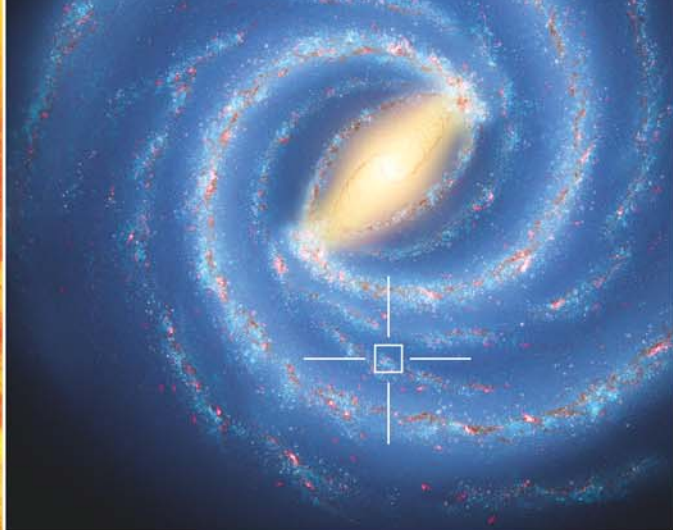


The living planet

Life on earth could never exist were it not for a series of very fortunate “coincidences,” some of which were unknown or poorly understood until the 20th century. Those coincidences include the following:

- Earth’s location in the Milky Way galaxy and the solar system, as well as the planet’s orbit, tilt, rotational speed, and unusual moon
- A magnetic field and an atmosphere that serve as a dual shield
- Natural cycles that replenish and cleanse the planet’s air and water supply

As you consider each of these topics, ask yourself, ‘Are earth’s features a product of blind chance or of purposeful design?’



Could the earth be located in a better position to host life?

Earth's perfect "address"

When you write down your address, what do you include? You might put in your country, city, and street. By way of comparison, let's call the Milky Way galaxy earth's "country," the solar system—that is, the sun and its planets—earth's "city," and earth's orbit within the solar system earth's "street." Thanks to advances in astronomy and physics, scientists have gained deep insights into the merits of our special spot in the universe.

To begin with, our "city," or solar system, is located in the ideal region of the Milky Way galaxy—not too close to the center and not too far from it. This "habitable zone," as scientists call it, contains

just the right concentrations of the chemical elements needed to support life. Farther out, those elements are too scarce; farther in, the neighborhood is too dangerous because of the greater abundance of potentially lethal radiation and other factors. "We live in prime real estate," says *Scientific American* magazine.¹

▲ NASA/JPL/Caltech

The ideal "street": No less "prime" is earth's "street," or orbit within our solar system "city." About 93 million miles from the sun, this orbit lies within a limited zone that is habitable because life neither freezes nor fries. Moreover, earth's path is almost circular, keeping us roughly the same distance from the sun year-round.

The sun, meanwhile, is the perfect "powerhouse." It is stable, it is the ideal size, and it emits just the right amount of energy. For good reason, it has been called "a very special star."²

The perfect "neighbor": If you had to choose a "next-door neighbor" for the earth, you could not improve on the moon. Its diameter measures just over a quarter of that of the earth. Thus, when



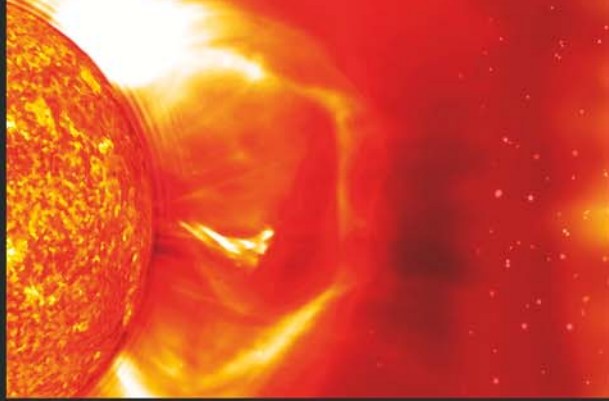
compared with other moons in our solar system, our moon is unusually large in relation to its host planet. Mere coincidence? It seems unlikely.

For one thing, the moon is the principal cause of ocean tides, which play a vital role in earth's ecology. The moon also contributes to the planet's stable spin axis. Without its tailor-made moon, our planet would wobble like a spinning top, perhaps even tipping right over and turning on its side, as it were! The resulting climatic, tidal, and other changes would be catastrophic.

Earth's perfect tilt and spin: Earth's tilt of about 23.4 degrees causes the annual cycle of seasons, moderates temperatures, and allows for a wide range of climate zones. "Our planet's tilt axis seems to be 'just right,'" says the book *Rare Earth—Why Complex Life Is Uncommon in the Universe*.³



Also "just right" is the length of day and night, a result of earth's spin. If the speed of rotation were substantially slower, the days would be longer and the side of the earth facing the sun would bake while the other side would freeze. Conversely, if the earth were to spin much faster, the days would be shorter, perhaps just a few hours long, and earth's rapid spin would cause relentless gale-force winds and other harmful effects.

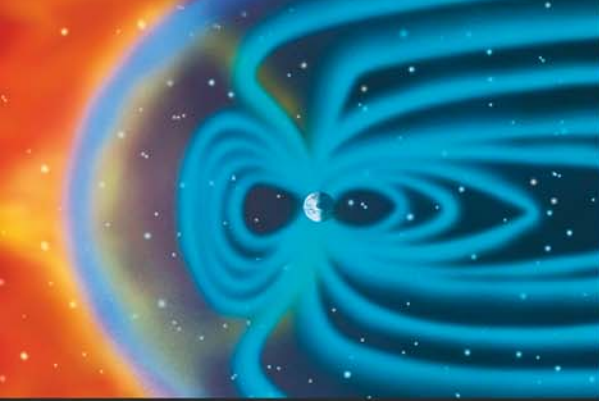


Earth's protective shields

Space is a dangerous place where lethal radiation is common and meteoroids are an ever-present danger. Yet, our blue planet seems to fly through this galactic "shooting gallery" with relative impunity. Why? Because earth is protected by amazing armor—a powerful magnetic field and a custom-made atmosphere.

Earth's magnetic field: The center of the earth is a spinning ball of molten iron, which causes our planet to have a huge and powerful magnetic field that stretches far into space. This shield protects us from the full intensity of cosmic radiation and from potentially deadly forces emanating from the sun. The latter include the solar wind, which is a steady stream of energetic particles; solar flares, which in minutes release as much energy as billions of hydrogen bombs; and explosions in the outer region, or corona, of the sun, which blast billions of tons of matter into space. You can see visible reminders of the protection you receive from

Magnetosphere: NASA/Steve Hill; earth tilt: Based on NASA/Visible Earth imagery



◀◀ The earth's invisible magnetic shield

Aurora borealis ▶▶

the earth's magnetic field. Solar flares and explosions in the sun's corona trigger intense auroras, colorful displays of light visible in the upper atmosphere near earth's magnetic poles.

Earth's atmosphere: This blanket of gases not only keeps us breathing but also provides additional protection. An outer layer of the atmosphere, the *stratosphere*, contains a form of oxygen called ozone, which absorbs up to 99 percent of incoming ultraviolet (UV) radiation. Thus, the ozone layer helps to protect many forms of life—including humans and the plankton we depend on to produce much of our oxygen—from dangerous radiation. The amount of stratospheric ozone is not fixed. Rather, it changes, growing as the intensity of UV radiation rises. So the ozone layer is a dynamic, efficient shield.

The atmosphere also protects us from a daily barrage of debris from space—millions of objects ranging in size from tiny particles to boulders. By far the majority of these burn up in the atmosphere, be-

coming bright flashes of light called meteors. However, earth's shields do not block radiation that is essential to life, such as heat and visible light. The atmosphere even helps to distribute the heat around the globe, and at night the atmosphere acts as a blanket, slowing the escape of heat.

Earth's atmosphere and magnetic field truly are marvels of design that are still not fully understood. The same could be said of the cycles that sustain life on this planet.

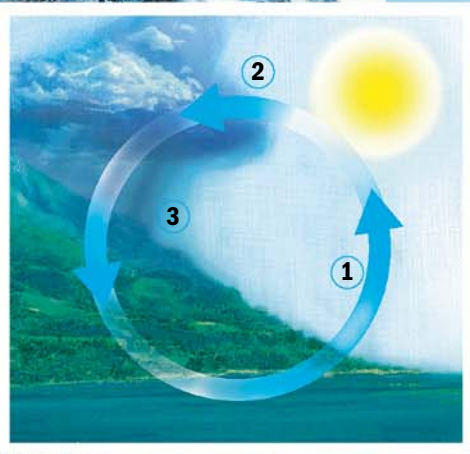
The atmosphere protects us from meteors ▶▶

Is it only a coincidence that our planet is protected by two dynamic shields?



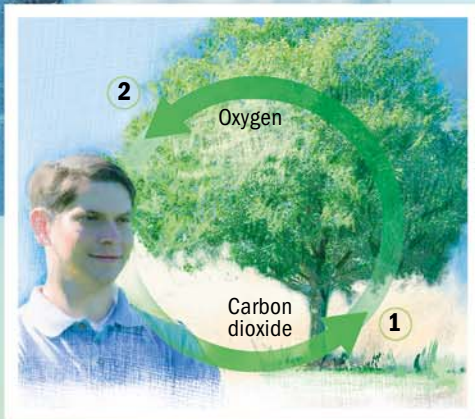
Natural cycles for life

If a city's supply of fresh air and water were cut and its sewers blocked, disease and death would soon follow. But consider: Our planet is not like a restaurant, where new food and supplies are shipped in from outside and garbage is carted away. The clean air and water we depend on are not shipped in from outer space, nor is waste matter rocketed out. So how does the earth remain healthy and habitable? The answer: the natural cycles, such as water, carbon, oxygen, and nitrogen cycles, explained here and shown simplified.



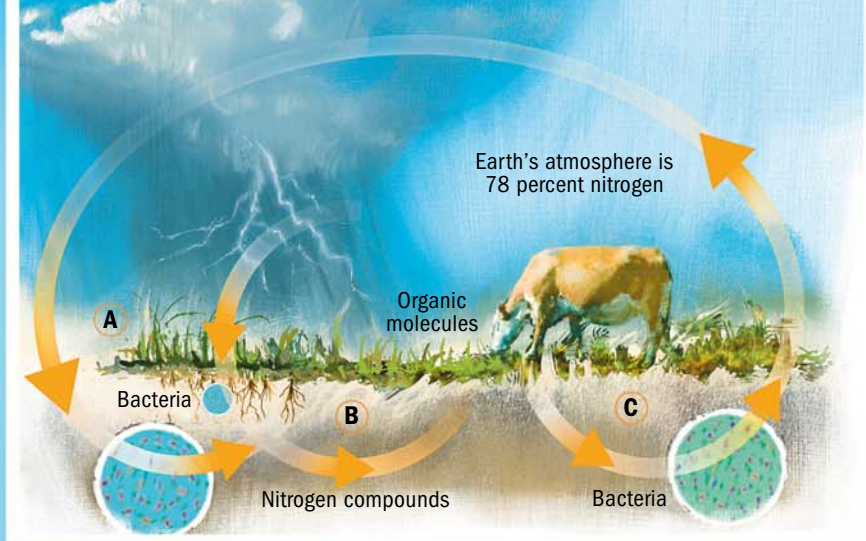
◀◀ **The water cycle:** Water is essential to life.

None of us can live without it for more than a few days. The water cycle distributes fresh, clean water around the planet. It involves three stages. **(1)** Solar power lifts water into the atmosphere by evaporation. **(2)** Condensation of this purified water produces clouds. **(3)** Clouds, in turn, form rain, hail, sleet, or snow, which falls to the ground, ready to evaporate again, thus completing the cycle. How much water is recycled annually? According to estimates, enough to cover the earth's surface uniformly to a depth of more than two and a half feet.⁴



◀◀ **The carbon and oxygen cycles:** As you know,

in order to live you need to breathe, to take in oxygen and give out carbon dioxide. But with countless billions of humans and animals doing the same thing, why does our atmosphere never run out of oxygen and become overloaded with carbon dioxide? The answer lies in the oxygen cycle. **(1)** In an amazing process called photosynthesis, plants take in the carbon dioxide that we exhale, using it and the energy from sunlight to produce carbohydrates and oxygen. **(2)** When we take in oxygen, we complete that cycle. All this production of vegetation and breathable air happens cleanly, efficiently, and quietly.



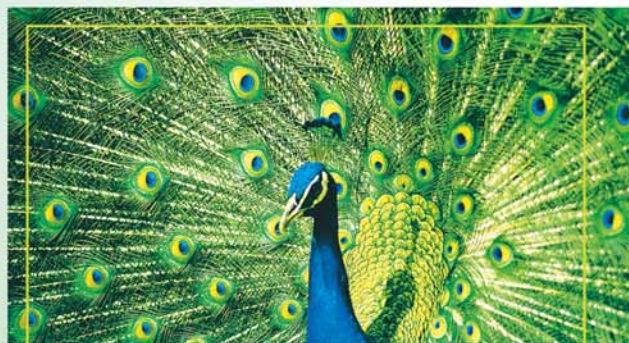
➤ **The nitrogen cycle:** Life on earth also depends on the production of such organic molecules as proteins. **(A)** To produce those molecules, nitrogen is needed. Happily, that gas makes up about 78 percent of our atmosphere. Lightning converts nitrogen into compounds that plants can absorb. **(B)** Then plants incorporate those compounds into organic molecules. Animals that eat those plants thus also acquire nitrogen. **(C)** Finally, when plants and animals die, the nitrogen compounds in them are broken down by bacteria. That process of decay releases nitrogen back into the soil and atmosphere, completing the cycle.

Perfect recycling!

Humans, with all their advanced technology, create countless tons of unrecyclable toxic waste annually. Yet, the earth recycles *all* its wastes perfectly, using ingenious chemical engineering.

How do you think the earth's recycling systems arose? "If the Earth's ecosystem had truly evolved by chance alone, it wouldn't possibly have been able to reach such a perfect level of environmental harmony," says religion and science writer M. A. Corey.⁵ Do you agree with his conclusion?

Stockbyte/Getty Images



How would you reply?

- Do you feel that the earth's features are the product of purposeful design? If so, which of the above facts do you find most convincing?
- How would you respond to the claim that the earth is nothing special, just another setting where evolution could occur?

Teeming with life

No one knows how many species there are on earth. Estimates vary from 2 million to 100 million.⁶ How pervasive is life on our planet?

Earth: Just one hundred grams (3.5 ounces) of soil has been found to host 10,000 *species* of bacteria,⁷ not to mention the total number of microbes. Some species have been found almost two miles underground!⁸

Air: In addition to the birds, bats, and insects that fly through the air, the atmosphere is filled with pollen and other spores, as well as seeds and—in certain areas—thousands of different kinds of microbes. The diversity of microbial life in the air is “on par with the diversity of microbes in the soil,” says *Scientific American* magazine.⁹

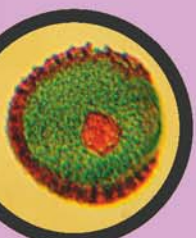
Water: The oceans remain largely a mystery because in order to study the watery deep, scientists often have to use costly technology. Even coral reefs, which are relatively accessible and are well-surveyed, may host millions of yet unknown species.

Did this impressive variety of life arise by chance? Many would agree with the poet who wrote: “How many your works are, O Jehovah! All of them in wisdom you have made. The earth is full of your productions.”*—Psalm 104:24.

* In the Bible, God’s personal name is Jehovah.—Psalm 83:18.



Subterranean bacteria



Pollen



Anemone



Bacteria: Penn State University, laboratory of Jean Brenchley, and with kind permission from Springer Science+Business Media; Extremophiles, Novel ultramicrobacterial isolates from a deep Greenland ice core represent a proposed new species, *Chryseobacterium greenlandense* sp. nov., January 2010, Jennifer Loveland-Curtze; pollen: © Fotosearch



Who designed it first?

In recent years, scientists and engineers have, in a very real sense, allowed plants and animals to instruct them. (Job 12:7, 8) They are studying and mimicking the design features of various creatures—a field known as bio-mimetics—in an effort to create new products and improve the performance of existing ones. As you consider the following examples, ask yourself, ‘Who really deserves the credit for these designs?’



Learning from the whale's flippers

What can aircraft designers learn from the humpback whale? A great deal, it seems. An adult humpback weighs about 30 tons—as much as a loaded truck—and has a relatively stiff body with large wing-like flippers. This 40-foot-long animal is remarkably agile under water.

What particularly intrigued researchers was how this stiff-bodied creature could turn in what seem to be impossibly tight circles. They discovered that the secret is in the shape of the whale's flippers. The leading edge of its flippers is not smooth, like an aircraft wing, but serrated, with a row of protruding bumps called tubercles.

As the whale slices through the water, these tubercles increase lift and reduce drag. How? The journal *Natural History* explains that the tubercles make the water accelerate over the flipper in an organized, rotating flow, even when the whale is rising at very steep angles.¹⁰

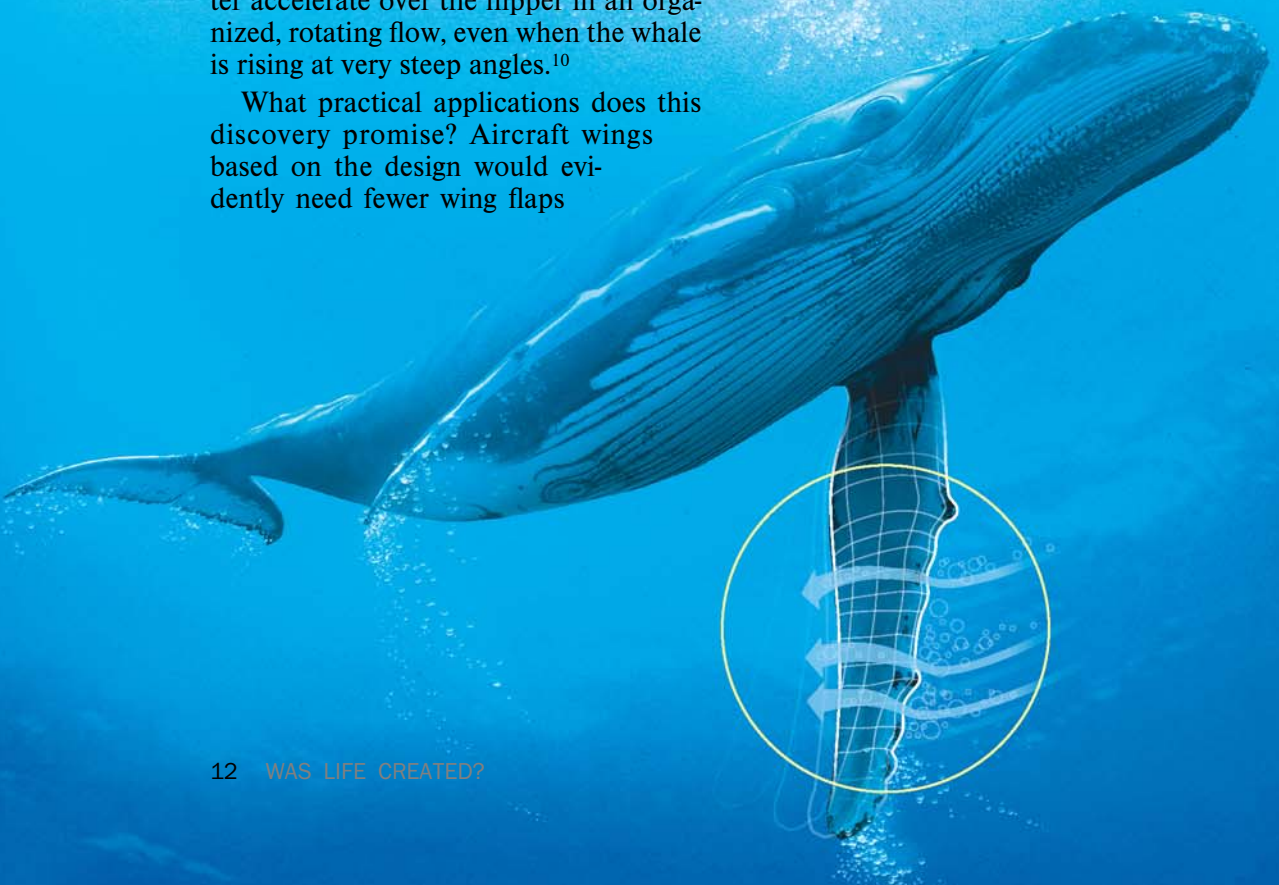
What practical applications does this discovery promise? Aircraft wings based on the design would evidently need fewer wing flaps

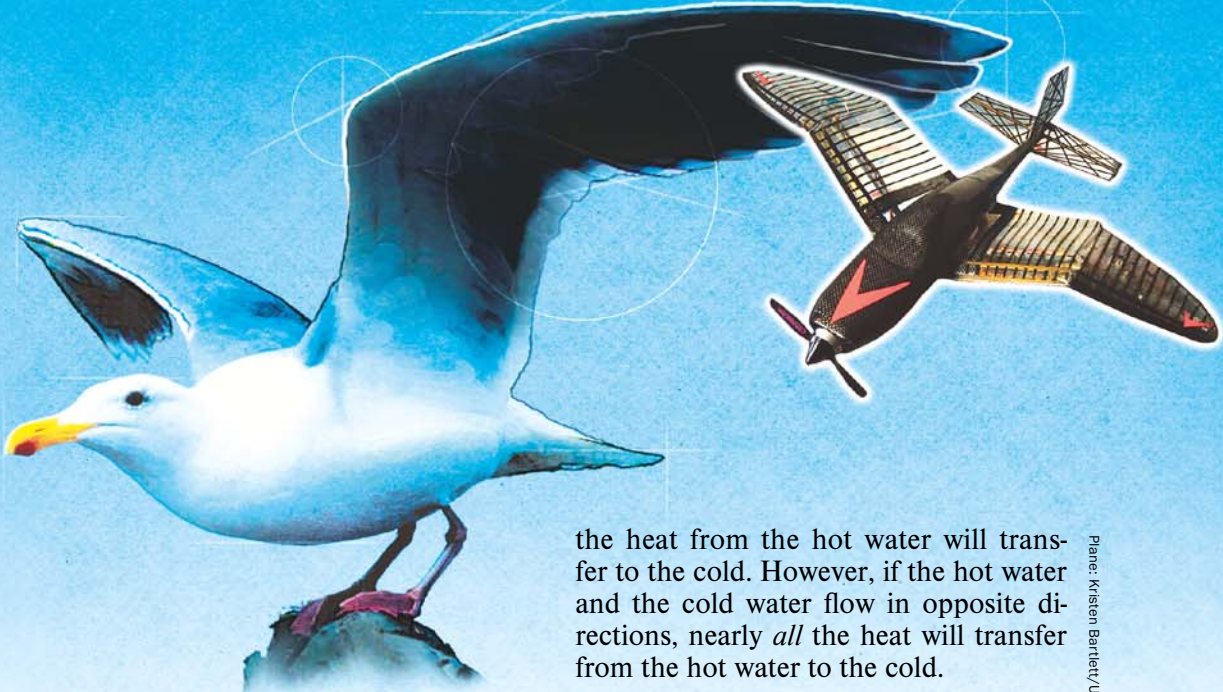
or other mechanical devices to alter airflow. Such wings would be safer and easier to maintain. Biomechanics expert John Long believes that someday soon “we may well see every single jetliner with the bumps of humpback whale flippers.”¹¹

Mimicking the seagull's wings

Of course, aircraft wings already mimic the shape of birds' wings. However, engineers have recently taken this mimicry to new heights. “Researchers at the University of Florida,” reports *New Scientist*, “have built a prototype remote-controlled drone with a seagull's ability to hover, dive and climb rapidly.”¹²

Seagulls perform their remarkable aerobatic maneuvers by flexing their wings at the elbow and shoulder joints. Copying this flexible wing design, “the





Plane: Kristen Bartlett/University of Florida

24-inch prototype drone uses a small motor to control a series of metal rods that move the wings,” says the magazine. These cleverly engineered wings enable the small aircraft to hover and dive between tall buildings. Some military personnel are keen to develop such a highly maneuverable craft for use in searching for chemical or biological weapons in big cities.

the heat from the hot water will transfer to the cold. However, if the hot water and the cold water flow in opposite directions, nearly *all* the heat will transfer from the hot water to the cold.

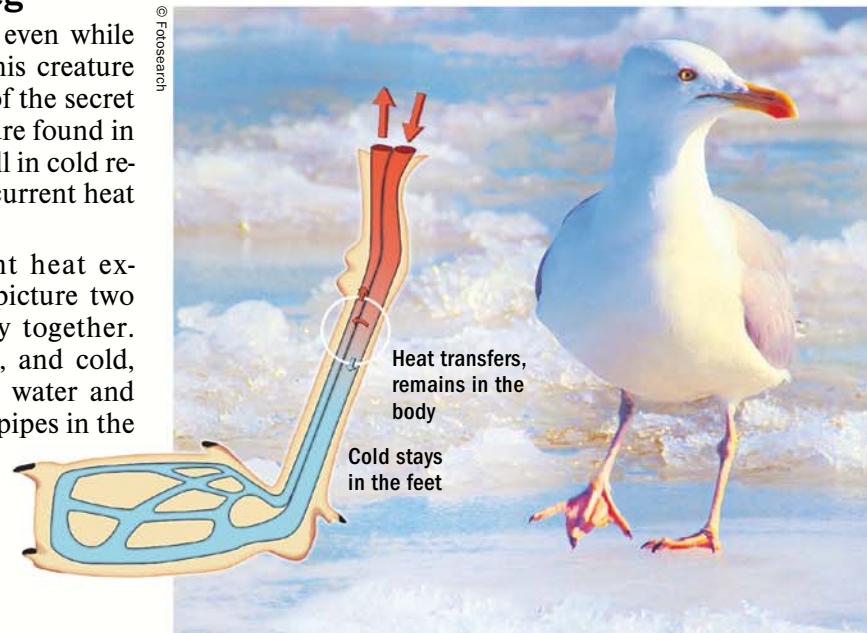
When a seagull stands on ice, the heat exchangers in its legs warm the blood as it returns from the bird’s cold feet. The heat exchangers conserve heat in the bird’s body and prevent heat loss from its feet. Arthur P. Fraas, a mechanical and aeronautical engineer, described this design as “one of the world’s most effective regenerative heat exchangers.”¹³ This design is so ingenious that human engineers have copied it.

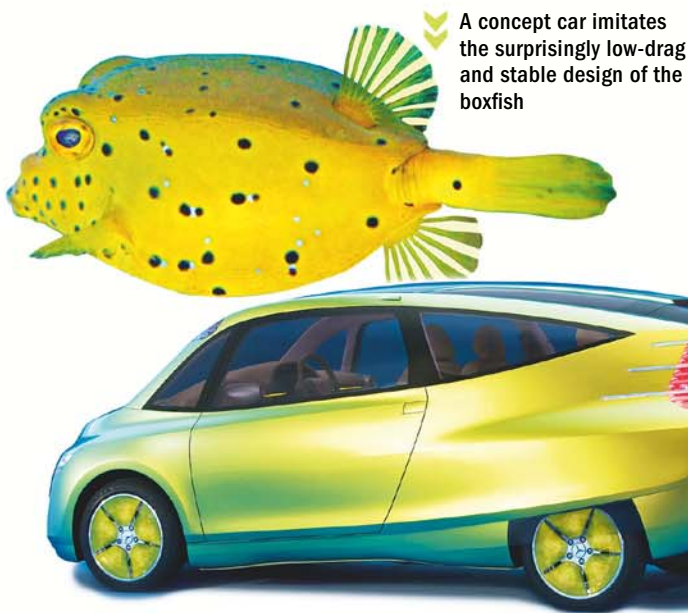
Copying the seagull’s leg

A seagull does not freeze, even while standing on ice. How does this creature conserve its body heat? Part of the secret is in a fascinating design feature found in a number of animals that dwell in cold regions. It is called the countercurrent heat exchanger.

What is a countercurrent heat exchanger? To understand it, picture two water pipes strapped closely together. Hot water flows in one pipe, and cold, in the other. If both the hot water and the cold water flow down the pipes in the same direction, about half of

© Fotoserch





▶ A concept car imitates the surprisingly low-drag and stable design of the boxfish



▶ Sonar in dolphins is superior to the human imitation ▶

Who deserves the credit?

Meanwhile, the National Aeronautics and Space Administration is developing a multilegged robot that walks like a scorpion, and engineers in Finland have already developed a six-legged tractor that can climb over obstacles the way a giant insect would. Other researchers have designed fabric with small flaps that imitate the way pinecones open and close.

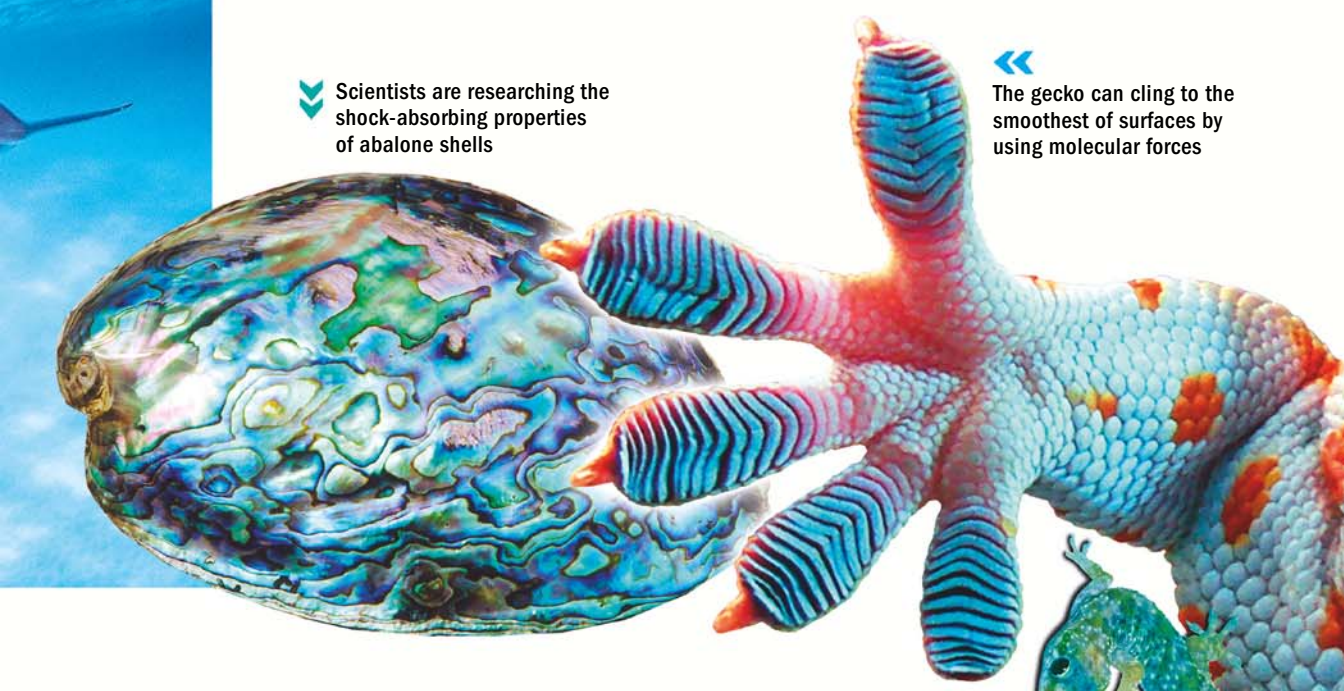
Who is nature's patent holder?

Such fabric adjusts to the body temperature of the wearer. A car manufacturer is developing a vehicle that imitates the surprisingly low-drag design of the boxfish. And other researchers are probing the shock-absorbing properties of abalone shells, with the intention of making lighter, stronger body armor.

So many good ideas have come from nature that researchers have established a database that already catalogs thou-

sands of different biological systems. Scientists can search this database to find "natural solutions to their design problems," says *The Economist*. The natural systems held in this database are known as biological patents. Normally, a patent holder is a person or a company that legally registers a new idea or machine. Discussing this biological patent database, *The Economist* says: "By calling biomimetic tricks 'biological patents', the researchers are just emphasising that nature is, in effect, the patent holder."¹⁴

How did nature come up with all these brilliant ideas? Many researchers would attribute the seemingly ingenious designs evident in nature to millions of years of evolutionary trial and error. Other researchers, though, arrive at a different conclusion. Microbiologist Michael J. Behe wrote in *The New York Times* of February 7, 2005: "The strong appearance of design [in nature] allows a disarmingly simple argument: if it looks, walks and quacks like a duck, then, absent compelling evidence to the con-



Scientists are researching the shock-absorbing properties of abalone shells

« The gecko can cling to the smoothest of surfaces by using molecular forces

trary, we have warrant to conclude it's a duck." His opinion? "Design should not be overlooked simply because it's so obvious."¹⁵

Surely, the engineer who designs a safer, more efficient aircraft wing would deserve to receive credit for his or her design. Likewise, the inventor who devises a more comfortable clothing material or a more efficient motor vehicle deserves credit for his or her design. In fact, a manufacturer who copies someone else's design but fails to acknowledge or credit the designer may be viewed as a criminal.

Now consider these facts: Highly trained researchers crudely mimic systems in nature to solve difficult engineering problems. Yet, some would attribute the genius of devising the original idea to unintelligent evolution. Does that sound reasonable to you? If the copy requires an intelligent designer, what about the original? Really, who deserves more credit, the master engineer or the apprentice who imitates his designs?

A logical conclusion

After reviewing evidence of design in nature, many people echo the sentiments of the Bible writer Paul, who said: "[God's] invisible qualities are clearly seen from the world's creation onward, because they are perceived by the things made, even his eternal power and Godship."—Romans 1:19, 20.

How would you reply?

- Does it seem logical to you to believe that the brilliant engineering evident in nature came about by accident?
- How would you answer the claim that life only *appears* to be designed?



Was it designed?

If the copy requires a designer, what about the original?

Fibers

- **Man-made product:** Kevlar is a tough man-made fiber used in such items as bulletproof vests. To manufacture Kevlar, high temperatures and hazardous solvents are required.
- **Natural product:** Orb-weaving spiders produce seven types of silk. The sturdiest, known as dragline silk, is lighter than cotton yet, ounce for ounce, is stronger than steel and tougher than Kevlar. If enlarged to the size of a football field, a web of dragline silk 0.4 inch thick with strands 1.6 inches apart could stop a jumbo jet in flight! Spiders produce dragline silk at room temperature, using water as a solvent.

Microscopic view of spider silk being secreted



Copyright Dennis Kunkel Microscopy, Inc.





Navigation

- **Man-made product:** Some commercial airliners have computerized autopilot systems that can not only guide a plane from one country to another but also land the plane. The computer used in one experimental autopilot system is about the size of a credit card.
- **Natural product:** Using a brain the size of the tip of a ballpoint pen, the monarch butterfly migrates up to 1,800 miles from Canada to a small patch of forest in Mexico. This butterfly relies on the sun to help it navigate, and it has the ability to compensate for the movement of the sun across the sky.



Lenses

- **Man-made product:** Engineers have developed an artificial compound eye that fits 8,500 lenses into a space the size of a pinhead. Such lenses could be used in high-speed motion detectors and ultrathin multidirectional cameras.
- **Natural product:** Each eye of a dragonfly is made up of some 30,000 lenses. These lenses produce images that combine to create a wide mosaic view. The compound eyes of the dragonfly are superb at detecting movement.





Evolution

myths and facts



“Evolution is as much a fact as the heat of the sun,” asserts Professor Richard Dawkins, a prominent evolutionary scientist.¹⁶ Of course, experiments and direct observations prove that the sun is hot. But do experiments and direct observations provide the teaching of evolution with the same undisputed support?

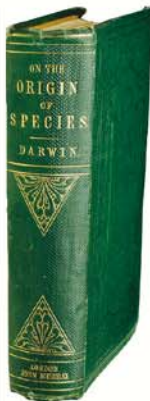
Before answering that question, we need to clear up something. Many scientists have noted that over time, the descendants of living things may change slightly. For example, humans can selectively breed dogs so that eventually the descendants have shorter legs or longer

hair than their forebears.* Some scientists attach to such slight changes the term “microevolution.”

However, evolutionists teach that small changes accumulated slowly over billions of years and produced the big changes needed to make fish into amphibians and apelike creatures into men. These proposed big changes are defined as “macroevolution.”

Charles Darwin, for example, taught that the small changes we can observe

* The changes dog breeders can produce often result from losses in gene function. For example, the dachshund's small size is caused by a failure of normal development of cartilage, resulting in dwarfism.



Charles Darwin
and his book
Origin of Species

implied that much bigger changes—which no one has observed—are also possible.¹⁷ He felt that over vast periods of time, some original, so-called simple life-forms slowly evolved—by means of “extremely slight modifications”—into the millions of different forms of life on earth.¹⁸

To many, this claim sounds reasonable. They wonder, ‘If small changes can occur within a species, why should not evolution produce big changes over long periods of time?’* In reality, though, the teaching of evolution rests on three myths. Consider the following.

Myth 1. Mutations provide the raw materials needed to create new species. The teaching of macroevolution is built on the claim that mutations—random changes in the genetic code of plants and animals—can produce not only new species but also entirely new families of plants and animals.¹⁹

The facts. Many characteristics of a plant or an animal are determined by the instructions contained in its genetic code, the blueprints that are wrapped up in the nucleus of each cell.[#] Researchers have discovered that mutations can produce alterations in the descendants of plants and animals. But do mutations really produce entirely new species? What has a century of study in the field of genetic research revealed?

In the late 1930’s, scientists enthusiastically embraced a new idea. They already thought that natural selection—the process in which the organism best suit-

ed to its environment is most likely to survive and breed—could produce new species of plants from random mutations. Therefore, they now assumed that artificial, or human-guided, selection of mutations should be able to do the same thing but more efficiently. “Euphoria spread among biologists in general and geneticists and breeders in particular,” said Wolf-Ekkehard Lönig, a scientist from the Max Planck Institute for Plant Breeding Research in Germany.* Why the euphoria? Lönig, who has spent some 30 years studying mutation genetics in plants, said: “These researchers thought that the time had come to revolutionize the traditional method

* Lönig believes that life was created. His comments in this publication are his own and do not represent the opinion of the Max Planck Institute for Plant Breeding Research.

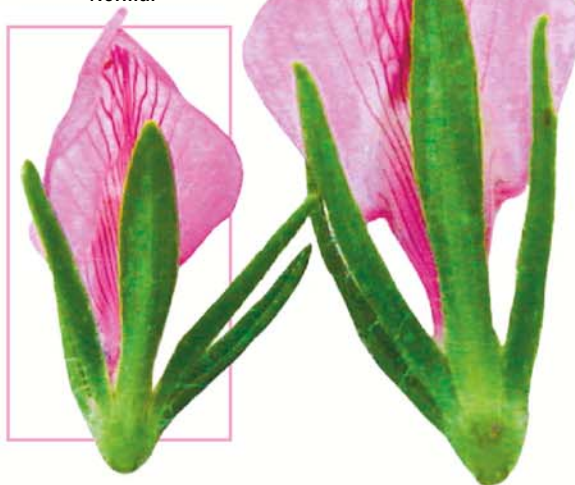


Mutant fruit flies, though malformed, are still fruit flies

Mutations can introduce changes in plants—such as this mutant with large flowers—but only within limits



Normal



* While the word “species” is used frequently in this section, it should be noted that this term is not found in the Bible book of Genesis. There we find the term “kind,” which is much broader in meaning. Often, what scientists choose to call the evolution of a new species is simply a matter of variation within a “kind,” as the word is used in the Genesis account.

Research shows that the cell’s cytoplasm, its membranes, and other structures also play a role in shaping an organism.

of breeding plants and animals. They thought that by inducing and selecting favorable mutations, they could produce new and better plants and animals.”²⁰ In fact, some hoped to produce entirely new species.

Scientists in the United States, Asia, and Europe launched well-funded research programs using methods that promised to speed up evolution. After more than 40 years of intensive research, what were the results? “In spite of an enormous financial expenditure,” says researcher Peter von Sengbusch, “the attempt to cultivate increasingly productive varieties by irradiation [to cause mutations], widely proved to be a failure.”²¹ And Lönnig said: “By the 1980’s, the hopes and euphoria among scientists had ended in worldwide failure. Mutation breeding as a separate branch of research was abandoned in Western countries. Almost all the mutants . . . died or were weaker than wild varieties.”*

Even so, the data now gathered from some 100 years of mutation research in general and 70 years of mutation breeding in particular enable scientists to draw conclusions regarding the ability of mutations to produce new species. After examining the evidence, Lönnig concluded: “Mutations cannot transform an original species [of plant or animal] into an entirely new one. This conclusion agrees with all the experiences and results of mutation research of the 20th century taken together as well as with the laws of probability.”

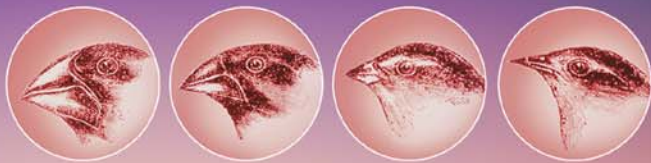
* Mutation experiments repeatedly found that the number of new mutants steadily declined, while the same type of mutants regularly appeared. In addition, less than 1 percent of plant mutations were chosen for further research, and less than 1 percent of this group were found suitable for commercial use. However, not one entirely new species was ever created. The results of mutation breeding in animals were even worse than in plants, and the method was abandoned entirely.

So, can mutations cause one species to evolve into a completely new kind of creature? The evidence answers no! Lönnig’s research has led him to the conclusion that “properly defined species have real boundaries that cannot be abolished or transgressed by accidental mutations.”²²

Consider the implications of the above facts. If highly trained scientists are unable to produce new species by artificially inducing and selecting favorable mutations, is it likely that an unintelligent process would do a better job? If research shows that mutations cannot transform an original species into an entirely new one, then how, exactly, was macroevolution supposed to have taken place?

Myth 2. Natural selection led to the creation of new species. Darwin believed that what he called natural selection would favor those life-forms best suited to the environment, whereas less suitable life-forms would eventually die off. Modern evolutionists teach that as species spread and became isolated, natural selection chose the ones with gene mutations that made them capable of surviving in their new environment. As a result, evolutionists speculate, these isolated groups eventually developed into totally new species.

The facts. As previously noted, the evidence from research strongly indicates that mutations cannot produce entirely new kinds of plants or animals. Nevertheless, what proof do evolutionists provide to support the claim that natural selection chooses beneficial mutations to produce new species? A brochure published in 1999 by the National Academy of Sciences (NAS) in the United States refers to “the 13 species of finches studied by Darwin on the Galápagos Islands, now known as Darwin’s finches.”²³



At best, Darwin's finches show that a species can adapt to changing climates

In the 1970's, a research group led by Peter R. and B. Rosemary Grant of Princeton University began studying these finches and discovered that after a year of drought on the islands, finches that had slightly bigger beaks survived more readily than those with smaller beaks. Since observing the size and shape of the beaks is one of the primary ways of determining the 13 species of finches, these findings were assumed to be significant. "The Grants have estimated," continues the NAS brochure, "that if droughts occur about once every 10 years on the islands, a new species of finch might arise in only about 200 years."²⁴

However, the NAS brochure neglects to mention that in the years following the drought, finches with smaller beaks again dominated the population. The researchers found that as the climatic conditions on the island changed, finches with longer beaks were dominant one year, but later those with smaller beaks were dominant. They also noticed that some of the

different "species" of finches were interbreeding and producing offspring that survived better than the parents. They concluded that if the interbreeding continued, it could result in the fusion of two "species" into just one.²⁵

So, does natural selection really create entirely new species? Decades ago, evolutionary biologist George Christopher Williams began questioning whether natural selection had such power.²⁶ In 1999, evolutionary theorist Jeffrey H. Schwartz wrote that natural selection may be helping species adapt to the changing demands of existence, but it is not creating anything new.²⁷

Indeed, Darwin's finches are not becoming "anything new." They are still finches. And the fact that they are interbreeding casts doubt on the methods some evolutionists use to define a species. In addition, information about these birds exposes the fact that even prestigious scientific academies are not above reporting evidence in a biased manner.

Beak drawings: From the book *Journal of Researches*, by Charles Darwin (1873). Image courtesy Biodiversity Heritage Library

Myth 3. The fossil record documents macroevolutionary changes.

The previously mentioned NAS brochure leaves the reader with the impression that the fossils found by scientists more than adequately document macroevolution. It declares: “So many intermediate forms have been discovered between fish and amphibians, between amphibians and reptiles, between reptiles and mammals, and along the primate lines of descent that it often is difficult to identify categorically when the transition occurs from one to another particular species.”²⁸

The facts. The confident statement made by the NAS brochure is quite surprising. Why? Niles Eldredge, a staunch evolutionist, states that the fossil record

According to the fossil record, all the major groups of animals appeared suddenly and remained virtually unchanged

shows, not that there is a gradual accumulation of change, but that for long periods of time, “little or no evolutionary change accumulates in most species.”²⁹

To date, scientists worldwide have unearthed and cataloged some 200 million large fossils and billions of small fossils. Many researchers agree that this vast and detailed record shows that all the major groups of animals appeared suddenly and remained virtually unchanged, with many species disappearing as suddenly as they arrived.

Belief in evolution—an act of “faith”

Why do many prominent evolutionists

* Even the few examples from the fossil record that researchers point to as proof of evolution are open to debate. See pages 22 to 29 of the brochure, *The Origin of Life—Five Questions Worth Asking*, published by Jehovah’s Witnesses.

insist that macroevolution is a fact? Richard Lewontin, an influential evolutionist, candidly wrote that many scientists are willing to accept unproven scientific claims because they “have a prior commitment, a commitment to materialism.”* Many scientists refuse even to consider the possibility of an intelligent Designer because, as Lewontin writes, “we cannot allow a Divine Foot in the door.”³⁰

In this regard, sociologist Rodney Stark is quoted in *Scientific American* as saying: “There’s been 200 years of marketing that if you want to be a scientific person you’ve got to keep your mind free of the fetters of religion.” He further notes that in research universities, “the religious people keep their mouths shut.”³¹

If you are to accept the teaching of macroevolution as true, you must believe that agnostic or atheistic scientists will not let their personal beliefs influence their interpretations of scientific findings. You must believe that mutations and natural selection produced all complex life-forms, despite a century of research that shows that mutations have not transformed even one properly defined species into something entirely new. You must believe that all creatures gradually evolved from a common ancestor, despite a fossil record that strongly indicates that the major kinds of plants and animals appeared abruptly and did not evolve into other kinds, even over aeons of time. Does that type of belief sound as though it is based on facts or on myths? Really, belief in evolution is an act of “faith.”

* “Materialism,” in this sense, refers to a theory that everything in the universe, including all life, came into existence without any supernatural intervention in the process.



How would you reply?

- How would you respond to the claim that proof of so-called microevolution is evidence that macroevolution must have taken place?
- Why is it significant that the fossil record shows that the majority of species changed very little over vast periods of time?





Science and the Genesis account

Many people claim that science disproves the Bible's account of creation. However, the real contradiction is, not between science and the Bible, but between science and the opinions of Christian Fundamentalists. Some of these groups falsely assert that according to the Bible, all physical creation was produced in six 24-hour days approximately 10,000 years ago.

The Bible, however, does not support such a conclusion. If it did, then many scientific discoveries over the past one hundred years would indeed discredit the Bible. A careful study of the Bible text reveals no conflict with established scientific facts. For that reason, Jehovah's Witnesses disagree with Christian Fundamentalists and many creationists. The following shows what the Bible really teaches.

When was “the beginning”?

The Genesis account opens with the simple, powerful statement: “In the beginning God created the heavens and the earth.” (Genesis 1:1) A number of Bible scholars agree that this statement describes an action separate from the creative days recounted from verse 3 onward. The implication is profound. According to the Bible's opening words, the universe, including our planet, Earth, was in existence for an indefinite time *before* the creative days began.

Geologists estimate that the earth is 4 billion years old, and astronomers calculate that the universe may be as much as 15 billion years old. Do these findings—or their potential future refinements—contradict Genesis 1:1? No. The

Bible does not specify the actual age of “the heavens and the earth.” Science is not at odds with the Biblical text.

How long were the creative days?

What about the length of the creative days? Were they literally 24 hours long? Some claim that because Moses—the writer of Genesis—later referred to the day that followed the six creative days as a model for the weekly Sabbath, each of the creative days must be literally 24 hours long. (Exodus 20:11) Does the wording of Genesis support this conclusion?

No, it does not. The fact is that the Hebrew word translated “day” can mean various lengths of time, not just a 24-hour



Genesis does not teach
that the earth and the
universe were created in
six 24-hour days just a few
thousand years ago



Events starting during one “day” continued into one or more of the following “days”

period. For example, when summarizing God’s creative work, Moses refers to all six creative days as one day. (Genesis 2:4) In addition, on the first creative day, “God began calling the light Day, but the darkness he called Night.” (Genesis 1:5) Here, only a portion of a 24-hour period is defined by the term “day.” Certainly, there is no basis in Scripture for arbitrarily stating that each creative day was 24 hours long.

How long, then, were the creative days? The Bible does not say; however, the wording of Genesis chapters 1 and 2 indicates that considerable lengths of time were involved.

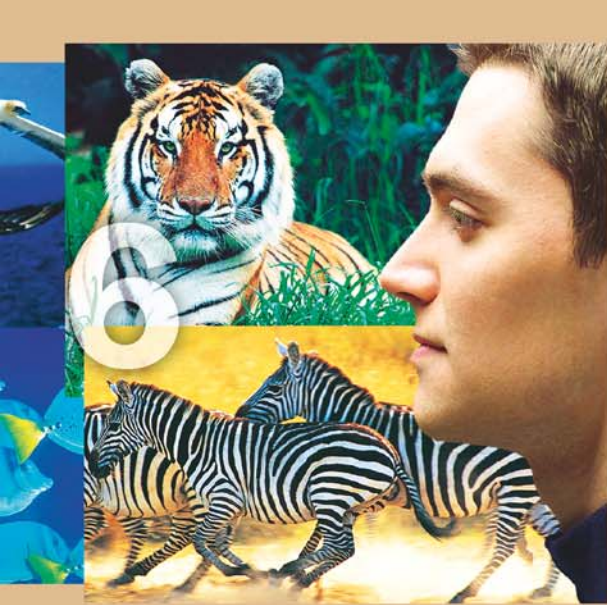
Six creative periods

Moses wrote his account in Hebrew, and he wrote it from the perspective of a person standing on the surface of the earth. These two facts combined with the knowledge that the universe existed before the beginning of the creative periods, or days, help to defuse much of the controversy surrounding the creation account. How so?

A careful consideration of the Genesis account reveals that events starting during one “day” continued into one or more of the following “days.” For example, before the first creative “day” started, light from the already existing sun was somehow prevented from reaching the earth’s surface, possibly by thick clouds. (Job 38:9) During the first “day,” this barrier began to clear, allowing diffused light to penetrate the atmosphere.*

On the second “day,” the atmosphere evidently continued to clear, creating a space between the thick clouds above and the ocean below. On the fourth “day,” the atmosphere gradually cleared to such an extent that the sun and the moon were made to appear “in the expanse of the heavens.” (Genesis 1:14-16) In other words, from the perspective of a person on earth, the sun and moon began to be discernible. These events happened gradually.

* In the description of what happened on the first “day,” the Hebrew word used for light is *’ohr*, light in a general sense, but concerning the fourth “day,” the word used is *ma-’ohr*, which refers to the source of light.



The Genesis account also relates that as the atmosphere continued to clear, flying creatures—including insects and membrane-winged creatures—started to appear on the fifth “day.”

The Bible’s narrative allows for the possibility that some major events during each day, or creative period, occurred gradually rather than instantly, perhaps some of them even lasting into the following creative days.*

According to their kinds

Does this progressive appearance of plants and animals imply that God used evolution to produce the vast diversity of living things? No. The record clearly states that God created all the basic “kinds” of plant and animal life. (Genesis 1:11, 12, 20-25) Were these original “kinds” of plants and animals programmed with the ability to adapt to changing environmental conditions? What defines the boundary of a “kind”?

* For example, during the sixth creative day, God decreed that humans “become many and fill the earth.” (Genesis 1:28, 31) Yet, this event did not even begin to occur until the following “day.”—Genesis 2:2.





Modern research confirms that all living things reproduce “according to their kinds”

The Bible does not say. However, it does state that living creatures “swarmed forth according to their kinds.” (Genesis 1:21)

This statement implies that there is a limit to the amount of variation that can occur within a “kind.” Both the fossil record and modern research support the idea that the fundamental categories of plants and animals have changed little over vast periods of time.

Contrary to the claims of some religious fundamentalists, Genesis does not teach that the universe, including the

earth and all living things on it, was created in a short period of time in the relatively recent past. Rather, aspects of the description in Genesis of the creation of the universe and the appearance of life on earth harmonize with recent scientific discoveries.

Because of their philosophical beliefs, many scientists reject the Bible’s declaration that God created all things. Interestingly, however, in the ancient Bible book of Genesis, Moses wrote that the universe had a beginning and that life appeared in stages, progressively, over periods of time. How could Moses gain access to such scientifically accurate information some 3,500 years ago? There is one logical explanation. The One with the power and wisdom to create the heavens and the earth could certainly give Moses such advanced knowledge. This gives weight to the Bible’s claim that it is “inspired of God.”*—2 Timothy 3:16.

You may wonder, though, does it really matter whether you believe the Bible’s account of creation? Consider some compelling reasons why the answer does matter.



How would you reply?

- What are some common misconceptions about the Bible’s account of creation?
- Why is it remarkable that the Bible and science agree on many points?

* For more information, watch the brief video *How Can We Be Sure the Bible Is True?* available on jw.org.

Does it matter what you believe?

Do you think that life has a purpose? Evolutionist William B. Provine says: “What we have learned about the evolutionary process has enormous implications for us, affecting our sense of meaning in life.” His conclusion? “I can see no cosmic or ultimate meaning in human life.”³²



► Faunia, Madrid

Consider the significance of those words. If ultimate meaning in life were nonexistent, then you would have no purpose in living other than to try to do some measure of good and perhaps pass on your genetic traits to the next generation. At death, you would cease to exist forever. Your brain, with its ability to think, reason, and meditate on the meaning of life, would simply be an accident of nature.

That is not all. Many who believe in evolution assert that God does not exist or that he will not intervene in human affairs. In either case, our future would rest in the hands of political, academic, and religious leaders. Judging from the past record of such men, the chaos, conflict, and corruption that blight human society would continue. If, indeed, evolution were true, there would seem to be ample reason to live by the fatalistic motto: “Let us eat and drink, for tomorrow we are to die.”—1 Corinthians 15:32.

By contrast, the Bible teaches: “With [God] is the source of life.” (Psalm 36:9) Those words have profound implications.

If what the Bible says is true, life does have meaning. Our Creator has a loving purpose that extends to all who choose to live in accord with his will. (Ecclesiastes 12:13) That purpose includes the promise of life in a world free of chaos, conflict, and corruption—and even free of death.—Psalm 37:10, 11; Isaiah 25:6-8.

With good reason, millions of people around the world believe that learning about God and obeying him give meaning to life as nothing else can! (John 17:3) Such a belief is not based on mere wishful thinking. The evidence is clear—life was created.

How would you reply?

- What are you inclined to believe—that we evolved or that we were created? Why do you so answer?
- What are some good reasons for examining the basis for your beliefs?



Bibliography

The Living Planet

1. *Scientific American*, Special Issue 2008 entitled "Majestic Universe," p. 11.
2. *Perfect Planet, Clever Species—How Unique Are We?* by William C. Burger, 2003, pp. 24, 34.
3. *Rare Earth—Why Complex Life Is Uncommon in the Universe*, by Peter D. Ward and Donald Brownlee, 2000, p. 224.
4. *The Sacred Balance—Rediscovering Our Place in Nature*, by David Suzuki, 2007, p. 102.
5. *God and the New Cosmology—The Anthropic Design Argument*, by M. A. Corey, 1993, pp. 144-145.

Box: Teeming With Life



© David Hawkes

6. *Wildlife in a Changing World—An Analysis of the 2008 IUCN Red List of Threatened Species*, edited by Jean-Christophe Vié, Craig Hilton-Taylor, and Simon N. Stuart, 2009, p. 6.

7. *Journal of Industrial Microbiology*, "Total Bacterial Diversity in Soil and Sediment Communities—A Review," by V. Torsvik, R. Sørheim, and J. Goksøyr, Volume 17, 1996, pp. 170-178.

8. *Science*, "Environmental Genomics Reveals a Single-Species Ecosystem Deep Within Earth," by Dylan Chivian, et al, Volume 322, October 10, 2008, pp. 275-278.

9. *Scientific American*, "Microbe Census Reveals Air Crawling With Bacteria," by David Biello, <http://www.scientificamerican.com/article.cfm?id=microbe-census-reveals-ai>.

Who Designed It First?

10. *Natural History*, "As the Whale Turns," by Adam Summers, June 2004, pp. 24-25.
11. *Science*, Random Samples, "Flipped Flight," May 21, 2004, p. 1106.
12. *New Scientist*, Technology, "Is It a Bird, Is It a Plane . . .," September 3, 2005, p. 21.
13. *Heat Exchanger Design*, Second Edition, by Arthur P. Fraas, 1989, p. 2.

14. *The Economist Technology Quarterly*, Report, "Technology That Imitates Nature," June 11, 2005, pp. 18-22.

15. *The New York Times*, "Design for Living," by Michael J. Behe, February 7, 2005, p. A21.

Evolution—Myths and Facts

16. *Natural History*, "Darwin & Evolution—The Illusion of Design," by Richard Dawkins, November 2005, p. 37.

17. *Origin of Species*, by Charles Darwin, First Edition, 1859, Sixth Edition, 1872, pp. 285-286.

18. *Charles Darwin—The Origin of Species*, Introduction by Sir Julian Huxley, 1958 for Introduction, First Signet Classic Printing, September 2003, p. 458.

19. *Nobel Lectures, Physiology or Medicine 1942-1962*, 1999, "The Production of Mutations," by H. J. Muller, 1946, p. 162.

20. *Mutation Breeding, Evolution, and the Law of Recurrent Variation*, by Wolf-Ekkehard Lönnig, "Expectations in Mutation Breeding," 2005, p. 48, and interview with Wolf-Ekkehard Lönnig.

21. *Mutation Breeding, Evolution, and the Law of Recurrent Variation*, pp. 48-51.

22. *Mutation Breeding, Evolution, and the Law of Recurrent Variation*, pp. 49, 50, 52, 54, 59, 64, and interview with Wolf-Ekkehard Lönnig.

23. *Science and Creationism—A View From the National Academy of Sciences*, "Evidence Supporting Biological Evolution," 1999, p. 10.

24. *Science and Creationism—A View From the National Academy of Sciences*, "Evidence Supporting Biological Evolution," p. 11.

25. *Scientific American*, "Natural Selection and Darwin's Finches," by Peter R. Grant, October 1991, p. 87;

Nature, "Oscillating Selection on Darwin's Finches," by H. Lisle Gibbs and Peter R. Grant, June 11, 1987, p. 511;

Science, "Hybridization of Bird Species," by Peter R. Grant and B. Rosemary Grant, April 10, 1992, pp. 193-197.

26. *Adaption and Natural Selection*, by George C. Williams, 1966, p. 54.

27. *Sudden Origins—Fossils, Genes, and the Emergence of Species*, by Jeffrey H. Schwartz, 1999, pp. 317-320.

28. *Science and Creationism—A View From the National Academy of Sciences*, Second Edition, “Evidence Supporting Biological Evolution,” p. 14.

29. *The Triumph of Evolution and the Failure of Creationism*, by Niles Eldredge, 2000, pp. 49, 85.

30. *The New York Review of Books*, “Billions and Billions of Demons,” by Richard C. Lewontin, January 9, 1997, pp. 28-32.

31. *Scientific American*, “Scientists and Religion in America,” by Edward J. Larson and Larry Witham, September 1999, p. 91.

Does It Matter What You Believe?

32. *Science, Technology, and Social Progress*, edited by Steven L. Goldman, “Evolution and the Foundation of Ethics,” by William B. Provine, 1989, pp. 253, 266.

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

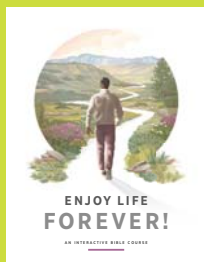


Is the Bible scientifically accurate?

Have its prophecies come true?

What is remarkable about its distribution?

To discover the answers, watch the four-and-a-half-minute video *How Can We Be Sure the Bible Is True?* available on **jw.org**.



You can also find answers to the following questions:

- Why do we suffer?
- How can we make our family life happier?
- What happens to us when we die?

The 256-page book *Enjoy Life Forever!* answers those and many other questions.

You can download a free copy of this book from **jw.org**.



Was life created, or are you purely the product of random, undirected events? Few questions create more controversy. Yet, the answer is vitally important. This brochure considers such questions as these:

- Was our planet designed for life?
- What can we learn from the designs evident in nature?
- Is the teaching of evolution based solidly on fact?
- Has science disproved the Bible's account of creation?
- Why does it matter what you believe?

