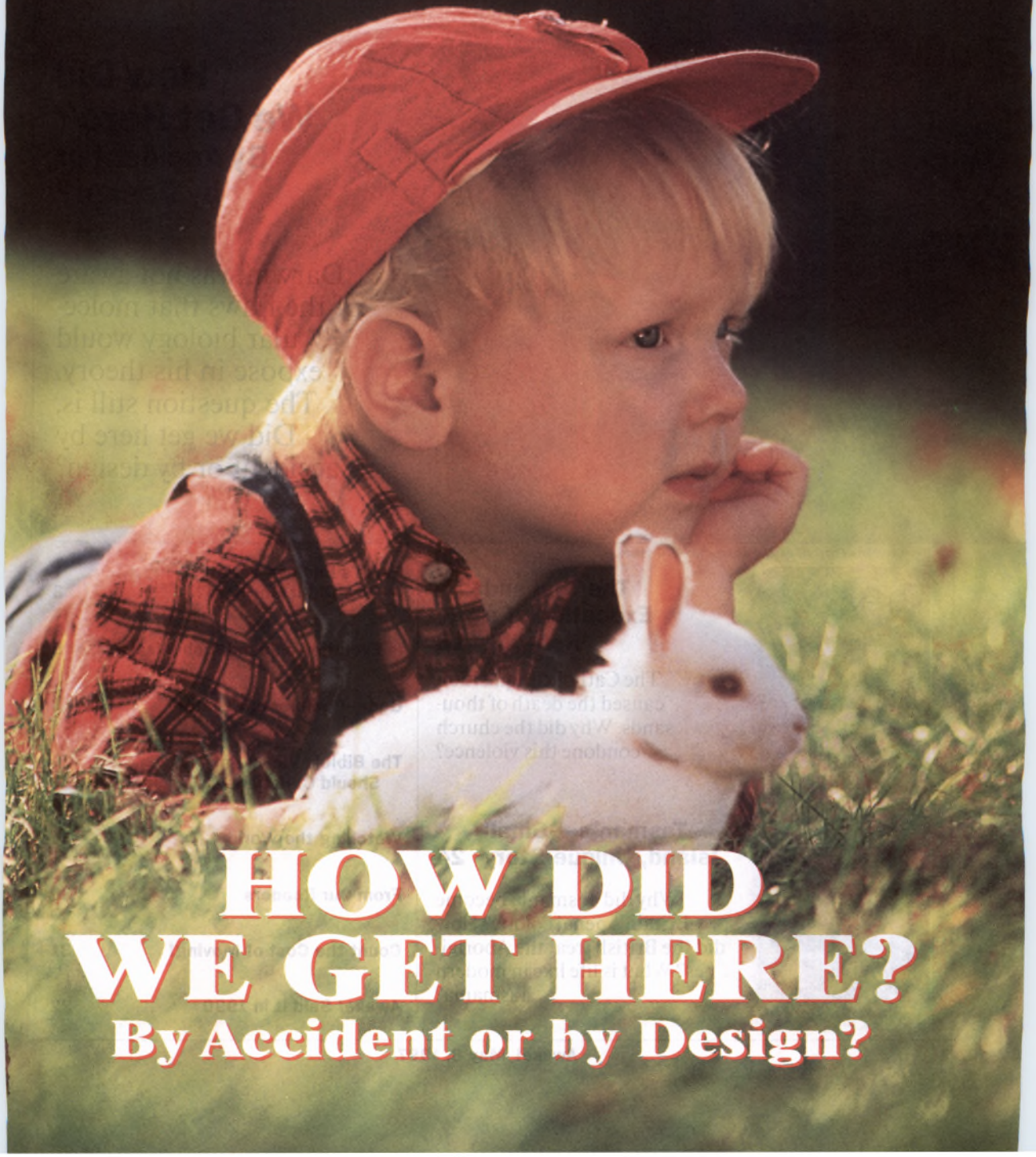
Awake!

May 8, 1997



HOW DID WE GET HERE?

By Accident or by Design?

Awake!

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How Did We Get Here?
By Accident or by Design?
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Darwin was not aware of the flaws that molecular biology would expose in his theory. The question still is, Did we get here by accident or by design?

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EARTH'S ENDLESS VARIETY

How Did It Get Here?

OF THE more than 1.5 million species of animals that scientists have named so far, about one million are insects. It would take 6,000 encyclopedia pages to list all the known insects! How did these creatures originate? Why such endless variety? Is this the result of blind chance, of nature getting "lucky" millions of times? Or is it by design?

First, let us briefly note some of the other varieties of living things that are on our planet.

Amazing Birds

What about the over 9,000 different species of marvelously designed birds? Some hummingbirds are as tiny as large bees, yet they fly with more dexterity and grace than the most advanced helicopter. Other birds migrate thousands of miles every year, such as the arctic tern, which flies as much as 22,000 miles on each round trip. It has no computer, no navigational instruments, yet it unerringly arrives at its destination. Does this innate ability exist by chance or by design?

Fascinating Variety of Plants

In addition, there is the tremendous variety and beauty of plant life—more than 350,000 species of plants. Approximately 250,000 of these produce flowers! The largest living things on earth—the giant sequoia trees—are plants.

How many different flowers grow in your garden or in your area? The beauty, the symmetry, and often the fragrance of these flowers—from the tiniest desert flower, daisy, or buttercup to orchids with their intricate variety—make one marvel. Again, we ask: How did they come to exist? By chance or by design?

Oceans Teeming With Life

And what of the life forms found in the rivers, lakes, and oceans of the world? Scientists say that there are about 8,400 known species of freshwater fish and about 13,300 of

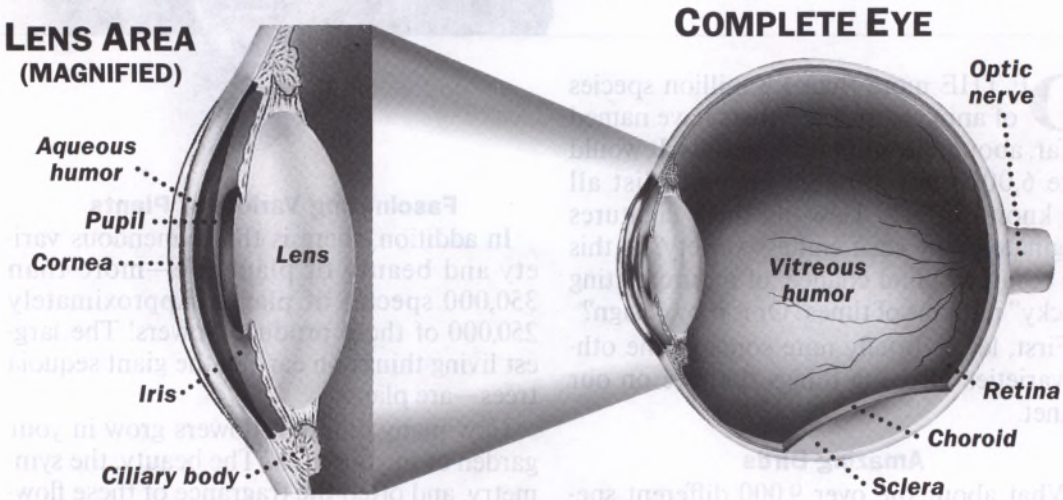
ocean-dwelling fish. The smallest of these is the goby found in the Indian Ocean. It is only about four tenths of an inch long. The largest is the whale shark, which can measure up to 60 feet in length. These figures for species do not take into account the invertebrates (lacking a backbone) or species still to be discovered!

The Incredible Brain

Above all, the human brain—containing at least ten billion neurons, each possibly having over 1,000 synapses, or points of contact with other nerve cells—is incredible. Neurologist Dr. Richard Restak says: "The total number of connections within the vast network of the brain's neuronal system is truly astronomical." (*The Brain*) He adds: "There may be from ten trillion to one hundred trillion synapses in the brain." Then he asks a pertinent question: "How could an organ such as the brain, which contains between ten billion and one hundred billion cells, ever develop from a single cell, the egg?" Is the brain the result of impersonal quirks and flukes of nature? Or is there intelligent design behind it all?

Yes, how did the seemingly endless diversity of life and design come about? Have you been taught that this was simply a matter of chance, of trial and error, of the hit and miss of a blind evolutionary lottery? Then continue reading to see the questions that some scientists, in all honesty, are asking about the theory of evolution, which has been called the foundation of all biological science.

If a simple camera requires a designer, what about the far more complex human eye?



Why *Awake!* Is Published *Awake!* is for the enlightenment of the entire family. It shows how to cope with today's problems. It reports the news, tells about people in many lands, examines religion and science. But it does more. It probes beneath the surface and points to the real meaning behind current events, yet it always stays politically neutral and does not exalt one race above another. Most important, this magazine builds confidence in the Creator's promise of a peaceful and secure new world that is about to replace the present wicked, lawless system of things.

Would you welcome more information? Write Watch Tower at the appropriate address on page 5. Publication of *Awake!* is part of a worldwide Bible educational work supported by voluntary donations.

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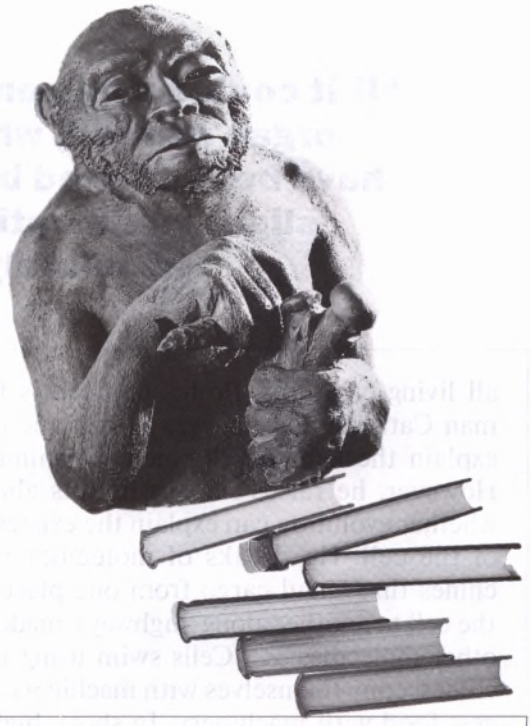

IS EVOLUTION'S FOUNDATION MISSING?

WHAT is the essence of Darwin's theory of evolution? "In its full-throated, biological sense, . . . *evolution* means a process whereby life arose from nonliving matter and subsequently developed entirely by natural means." Darwinian evolution postulates that "virtually all of life, or at least all of its most interesting features, resulted from natural selection working on random variation."—*Darwin's Black Box—The Biochemical Challenge to Evolution,** by Michael Behe, associate professor of biochemistry at Lehigh University, Pennsylvania, U.S.A.

* Referred to from here on as *Darwin's Black Box*.

Irreducible Complexity —Evolution's Stumbling Block?

When Darwin developed his theory, scientists had little or no knowledge of the amazing complexity of the living cell. Modern biochemistry, the study of life at the molecular level, has revealed some of that intricacy. It has also raised serious questions and doubts about Darwin's theory.

The components of cells are made up of molecules. Cells are the building blocks of

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"If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."

all living creatures. Professor Behe is Roman Catholic and believes in evolution to explain the later development of animals. However, he raises serious doubts about whether evolution can explain the existence of the cell. He speaks of molecular machines that "haul cargo from one place in the cell to another along 'highways' made of other molecules . . . Cells swim using machines, copy themselves with machinery, ingest food with machinery. In short, highly sophisticated molecular machines control every cellular process. Thus the details of life are finely calibrated, and the machinery of life enormously complex."

Now, all of this activity is taking place on what scale? A typical cell is only one thousandth of an inch across! In that infinitesimal space, complex functions vital to life are occurring. (See diagram, pages 8-9.) Little wonder that it has been said: "The bottom line is that the cell—the very basis of life—is staggeringly complex."

Behe argues that the cell can function only as a complete entity. Thus, it cannot be viable while being formed by slow, gradual changes induced by evolution. He uses the example of a mousetrap. This simple apparatus can function only when all its components are assembled. Each component on its own—platform, spring, holding bar, trap hammer, catch—is not a mousetrap and cannot function as such. All the parts are needed simultaneously and have to be assembled for there to be a working trap. Likewise, a cell can function as such only when all its components are assembled. He uses this illustration to explain what he terms "irreducible complexity."*

This presents a major problem for the alleged process of evolution, which involves the appearance of gradually acquired, useful characteristics. Darwin knew that his theory of gradual evolution by natural selection faced a big challenge when he said: "If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."—*Origin of Species*.

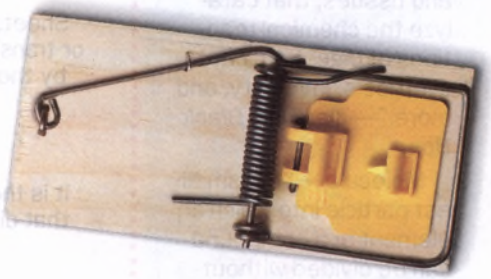
The irreducibly complex cell is a major stumbling block to belief in Darwin's theory. In the first place, evolution cannot explain the leap from inanimate to animate matter. Then comes the problem of the first complex cell, which must arise in one fell swoop as an integrated unit. In other words, the cell (or, the mousetrap) must appear out of nowhere, assembled and functioning!

The Irreducible Complexity of Blood Clotting

Another example of irreducible complexity is a process most of us take for grant-

* "Irreducible complexity" describes "a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning." (*Darwin's Black Box*) Thus, it is the simplest level at which a system can function.

The separate pieces do not make a mousetrap —it must be complete to function as such



ed when we cut ourselves—blood clotting. Normally, any liquid will immediately leak out of a punctured container and will do so until the container is empty. Yet, when we puncture or cut our skin, the leak is quickly sealed by the formation of a clot. However, as doctors know, "blood clotting is a very complex, intricately woven system consisting of a score of interdependent protein parts." These activate what is called a clotting cascade. This delicate healing process "depends critically on the timing and speed at which the different reactions occur." Otherwise, a person could have all of his blood clotting and solidifying, or on the other hand, he could bleed to death. Timing and speed are the vital keys.

Biochemical investigation has shown that blood clotting involves many factors, none of which can be missing for the process to succeed. Behe asks: "Once clotting has begun, what stops it from continuing until all the blood . . . has solidified?" He explains that "the formation, limitation, strengthening, and removal of a blood clot" make up an integrated biological system. If any part fails, then the system fails.

Russell Doolittle, evolutionist and professor of biochemistry at the University of California, asks: "How in the world did this complex and delicately balanced process evolve? . . . The paradox was, if each protein depended on activation by another, how could the system ever have arisen? Of what use would any part of the scheme be without the whole ensemble?" Using evolutionary arguments, Doolittle tries to explain the origin of the process. However, Professor Behe points out that there would be an "enormous amount of luck needed to get the right gene pieces in the right places." He shows that Doolittle's explanation and casual language conceal tremendous difficulties.

Thus, one of the major objections to the evolutionary model is the insurmountable hurdle of irreducible complexity. Behe states: "I emphasize that natural selection, the engine of Darwinian evolution, only works if there is something to select—something that is useful *right now,* not in the future."

"An Eerie and Complete Silence"

Professor Behe states that some scientists have studied "mathematical models for evolution or new mathematical methods for comparing and interpreting sequence data." However, he concludes: "The mathematics *assumes* that real-world evolution is a gradual, random process; *it does not (and cannot) demonstrate it.*" (Last phrase italics ours.) He earlier said: "If you search the scientific literature on evolution, and if you

(Continued on page 10)

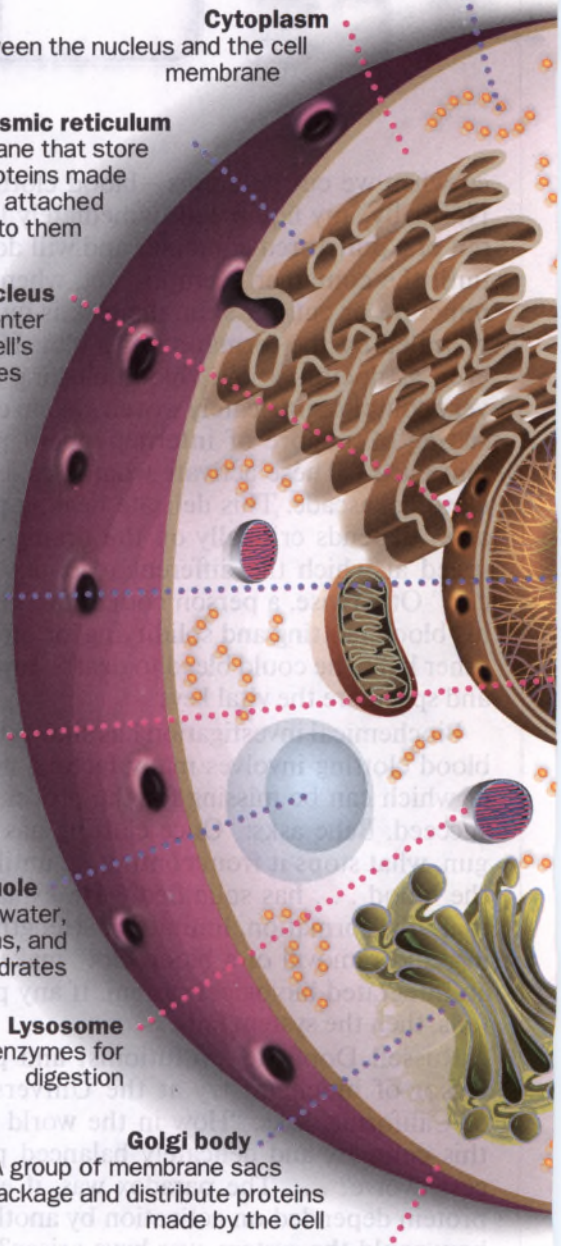
The Molecule and the Cell

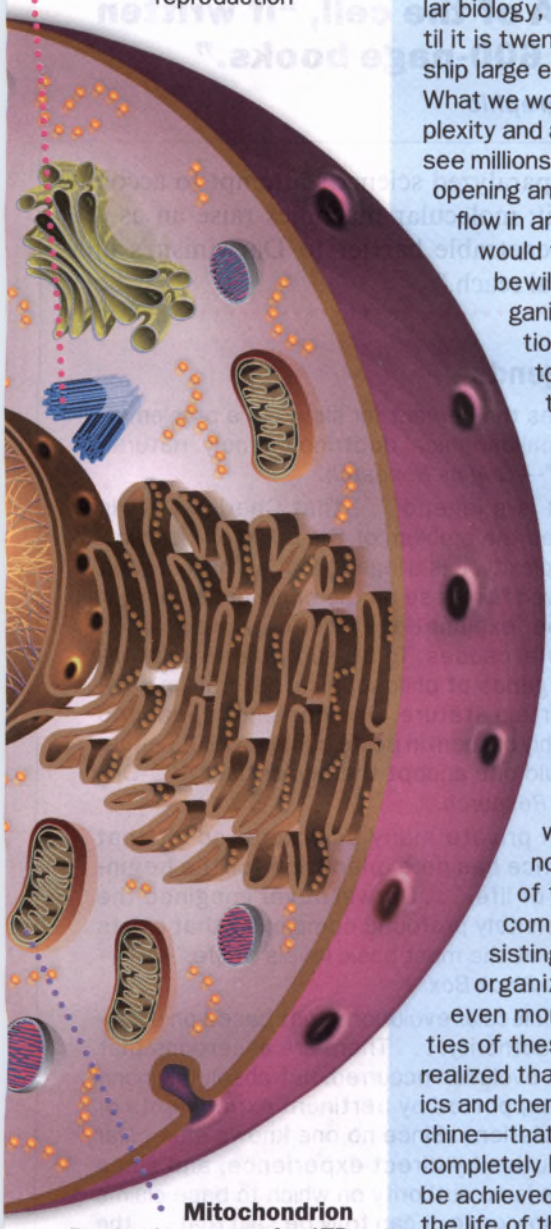
Biochemistry—"the study of the very basis of life: the molecules that make up cells and tissues, that catalyze the chemical reactions of digestion, photosynthesis, immunity, and more."—*Darwin's Black Box.*

Molecule—"the smallest particle into which an element or a compound can be divided without changing its chemical and physical properties; a group of like or different atoms held together by chemical forces."—*The American Heritage Dictionary of the English Language.*

Cell—the fundamental unit of all living organisms. "Every cell is a highly organized structure that is responsible for the form and function of an organism." How many cells form an adult human? One hundred trillion (100,000,000,000,000)! We have about 1,000,000 cells in every square inch of skin, and the human brain has from 10 billion to 100 billion neurons. "The cell is the key to biology because it is at this level that a collection of water, salts, macromolecules, and membranes truly springs to life."—*Biology.*

SIMPLIFIED DIAGRAM OF A CELL





The "Unparalleled Complexity" of the Cell

"To grasp the reality of life as it has been revealed by molecular biology, we must magnify a cell a thousand million times until it is twenty kilometres in diameter and resembles a giant airship large enough to cover a great city like London or New York. What we would then see would be an object of unparalleled complexity and adaptive design. On the surface of the cell we would see millions of openings, like the port holes of a vast space ship, opening and closing to allow a continual stream of materials to flow in and out. If we were to enter one of these openings we would find ourselves in a world of supreme technology and bewildering complexity. We would see endless highly organized corridors and conduits branching in every direction away from the perimeter of the cell, some leading to the central memory bank in the nucleus and others to assembly plants and processing units. The nucleus itself would be a vast spherical chamber more than a kilometre in diameter, resembling a geodesic dome inside of which we would see, all neatly stacked together in ordered arrays, the miles of coiled chains of the DNA molecules. A huge range of products and raw materials would shuttle along all the manifold conduits in a highly ordered fashion to and from all the various assembly plants in the outer regions of the cell.

"We would wonder at the level of control implicit in the movement of so many objects down so many seemingly endless conduits, all in perfect unison. We would see all around us, in every direction we looked, all sorts of robot-like machines. We would notice that the simplest of the functional components of the cell, the protein molecules, were astonishingly, complex pieces of molecular machinery, each one consisting of about three thousand atoms arranged in highly organized 3-D spatial conformation. We would wonder even more as we watched the strangely purposeful activities of these weird molecular machines, particularly when we realized that, despite all our accumulated knowledge of physics and chemistry, the task of designing one such molecular machine—that is one single functional protein molecule—would be completely beyond our capacity at present and will probably not be achieved until at least the beginning of the next century. Yet the life of the cell depends on the integrated activities of thousands, certainly tens, and probably hundreds of thousands of different protein molecules."—*Evolution: A Theory in Crisis.*

Inside the cell, there is "a world of supreme technology and bewildering complexity."—*Evolution: A Theory in Crisis*

The instructions within the DNA of the cell, "if written out, would fill a thousand 600-page books."

—*National Geographic*

focus your search on the question of how molecular machines—the basis of life—developed, you find an eerie and complete silence. The complexity of life's foundation has paralyzed science's attempt to account for it; molecular machines raise an as-yet-impenetrable barrier to Darwinism's universal reach."

Facts and Legends

"To a person who does not feel obliged to restrict his search to unintelligent causes, the straightforward conclusion is that many biochemical systems were designed. They were designed not by the laws of nature, not by chance and necessity; rather, they were *planned*. . . . Life on earth at its most fundamental level, in its most critical components, is the product of intelligent activity."—*Darwin's Black Box.*

"There can be no doubt that after a century of intensive effort biologists have failed to validate [the Darwinian theory of evolution] in any significant sense. The fact remains that nature has not been reduced to the continuum that the Darwinian model demands, nor has the credibility of chance as the creative agency of life been secured."—*Evolution: A Theory in Crisis.*

"The influence of evolutionary theory on fields far removed from biology is one of the most spectacular examples in history of how a highly speculative idea for which there is no really hard scientific evidence can come to fashion the thinking of a whole society and dominate the outlook of an age."—*Evolution: A Theory in Crisis.*

"Any science of the past . . . that excludes the possibility of design or creation a priori ceases to be a search for the truth, and becomes the servant (or slave) of a problematical philosophical doctrine, namely, naturalism."—*Origins Research.*

"It is a legend . . . that Charles Darwin solved the problem of the origin of biological complexity. It is a legend that we have a good or even fair grasp on the origin of life, or that proper explanations refer only to so-called natural causes. To be sure, these and other legends of philosophical naturalism have a certain stature. One does not speak too harshly of them in polite company. But neither should one accept them uncritically."—*Origins Research.*

"In private many scientists admit that science has no explanation for the beginning of life. . . . Darwin never imagined the exquisitely profound complexity that exists even at the most basic levels of life."—*Darwin's Black Box.*

"Molecular evolution is not based on scientific authority. . . . There are assertions that such evolution occurred, but absolutely none are supported by pertinent experiments or calculations. Since no one knows molecular evolution by direct experience, and since there is no authority on which to base claims of knowledge, it can truly be said that . . . the assertion of Darwinian molecular evolution is merely bluster."—*Darwin's Black Box.*

"The mathematics *assumes* that real-world evolution is a gradual, random process; it does not (and cannot) demonstrate it."

This raises a series of questions for conscientious scientists to consider: "How did the photosynthetic reaction center develop? How did intramolecular transport start? How did cholesterol biosynthesis begin? How did retinal become involved in vision? How did phosphoprotein signaling pathways develop?"* Behe adds: "The very fact that none of these problems is even addressed, let alone solved, is a very strong indication that Darwinism is an inadequate framework for understanding the origin of complex biochemical systems."

If Darwin's theory cannot explain the complex molecular foundation of cells, then how can it be a satisfactory explanation for the existence of the millions of species that inhabit this earth? After all, evolution cannot even produce new family kinds by bridging the gaps from one family kind to another.—Genesis 1:11, 21, 24.

The Problems of the Beginning of Life

No matter how plausible Darwin's theory of evolution may appear to be in the eyes of some scientists, they must ultimately face the question, Even if we assume that forms of living things evolved by natural selection, how did life get its start? In other words, the problem lies, not in survival of the fittest, but *in arrival of the fittest and the first!* However, as Darwin's remarks on the evolution of the eye indicate, he was not concerned with the problem of how life began. He wrote: "How a nerve comes to be sensitive to light hardly concerns us more than how life itself originated."

French science writer Philippe Chambon wrote: "Darwin himself wondered how nature selected emerging forms before they were perfectly functional. The list of evolutionary mysteries is endless. And today's biologists have to humbly admit, with Prof. Jean Génermont of the University of South Paris in Orsay, that 'the synthetic theory of evolution cannot readily explain the origin of complex organs.'"

In the light of the tremendous odds against such endless variety and complexity of life forms, do you find it difficult to believe that it all evolved in the right direction just by chance? Do you wonder how any creatures could have survived in the battle of the survival of the fittest while they were still evolving eyes? Or while they were supposedly forming primitive fingers on a subhuman body? Do you wonder how cells survived if they existed in an incomplete and inadequate state?

Robert Naeye, a writer for *Astronomy* magazine and an evolutionist, wrote that life on earth is the result of "a long sequence of improbable events [that] transpired in just the right way to bring forth our existence, as if we had won a million-dollar lottery a million times in a row." That line of reasoning can probably be applied to every

* Photosynthesis is the process whereby plant cells, using light and chlorophyll, make carbohydrates from carbon dioxide and water. It is called by some the most important chemical reaction occurring in nature. Biosynthesis is the process by which living cells manufacture complicated chemical compounds. Retinal is involved in the complex vision system. Phosphoprotein signaling pathways are integral functions of the cell.

"It is ironic that in the name of protecting science, trenchant scientific criticism of natural selection has been brushed aside."

single creature that exists today. The odds are stacked against it. Yet, we are expected to believe that by chance evolution also produced a male and a female at the same time in order for the new species to be perpetuated. To compound the odds, we also have to believe that the male and the female not only evolved at the same time but also in the same place! No meeting, no procreation!

Certainly, it stretches credulity to the limit to believe that life exists in its millions of perfected forms as a result of millions of gambles that paid off.

Why Do the Majority Believe?

Why is evolution so popular and accepted by so many as the only explanation for life on earth? One reason is that it is the orthodox view taught in schools and universities, and woe betide you if you dare to express any doubts. Behe states: "Many students learn from their textbooks how to view the world through an evolutionary lens. However, they do not learn how Darwinian evolution might have produced any of the remarkably intricate biochemical systems that those texts describe." He adds: "To understand both the success of Darwinism as orthodoxy and its failure as science at the molecular level, we have to examine the textbooks that are used to teach aspiring scientists."

"If a poll were taken of all the scientists in the world, the great majority would say they believed Darwinism to be true. But scientists, like everybody else, base most of their opinions on the word of other people. . . . Also, and unfortunately, too often criticisms have been dismissed by the scientific community for fear of giving ammunition to creationists. It is ironic that in the name of protecting science, trenchant scientific criticism of natural selection has been brushed aside."*

What viable and reliable alternative is there to Darwin's theory of evolution? Our final article in this series will address that question.

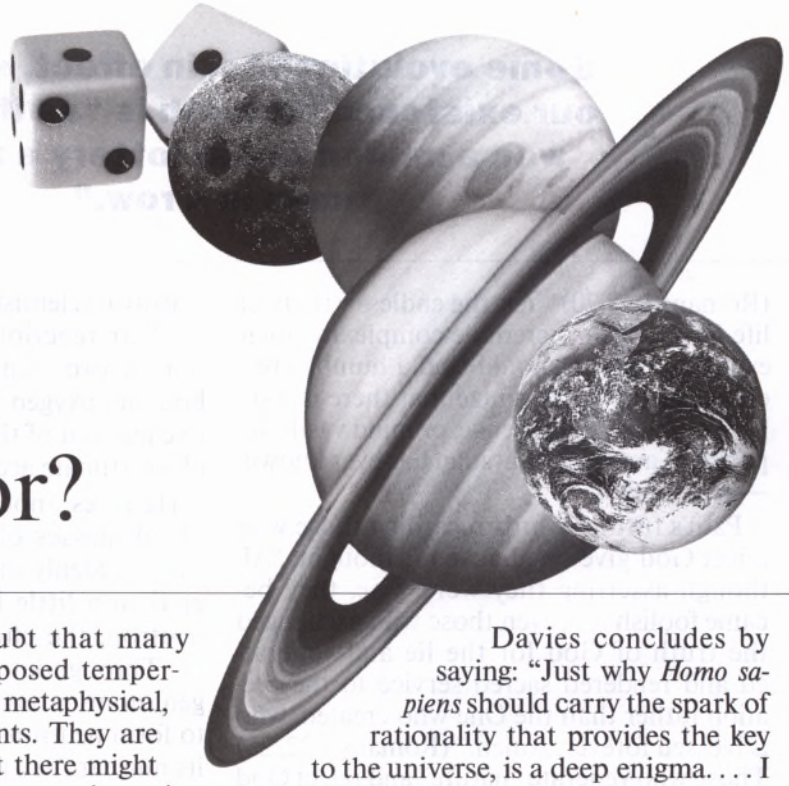
Evolution

"A Game of Chance"

The theory of evolution is certainly a gambler's dream. Why? Because according to the evolutionist, it wins even with astronomical odds against it.

Robert Naeye writes: "Because evolution is primarily a game of chance, any seemingly minor past event could have gone slightly different, cutting off our evolutionary line before humans evolved." But no, we are supposed to believe that every gamble paid off, millions of times. Naeye admits: "The long series of bottlenecks makes it clear that the emergence of intelligent life is far more difficult than scientists once thought. There are probably more obstacles that scientists haven't even stumbled across yet."

* Creationism involves belief that the earth was created in six literal days or, in some cases, that the earth was formed only about ten thousand years ago. Jehovah's Witnesses, while believing in creation, are not creationists. They believe that the Bible's Genesis account allows for the earth to be millions of years old.



GOD Gambler or Creator?

"THERE is no doubt that many scientists are opposed temperamentally to any form of metaphysical, let alone mystical arguments. They are scornful of the notion that there might exist a God, or even an impersonal creative principle . . . Personally I do not share their scorn." Thus states Paul Davies, professor of mathematical physics at the University of Adelaide, South Australia, in his book *The Mind of God*.

Davies also says: "A careful study suggests that the laws of the universe are remarkably felicitous for the emergence of richness and variety. In the case of living organisms, their existence seems to depend on a number of fortuitous coincidences that some scientists and philosophers have hailed as nothing short of astonishing."

He further states: "The scientific quest is a journey into the unknown. . . . But through it all runs the familiar thread of rationality and order. We shall see that this cosmic order is underpinned by definite mathematical laws that interweave each other to form a subtle and harmonious unity. The laws are possessed of an elegant simplicity."

Davies concludes by saying: "Just why *Homo sapiens* should carry the spark of rationality that provides the key to the universe, is a deep enigma. . . . I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in the great cosmic drama. Our involvement is too intimate. . . . We are truly meant to be here." However, Davies does not come to the conclusion that there is a Designer, a God. But what conclusion do you reach? Was mankind meant to be here? If so, who meant for us to be here?

Keys to the "Enigma"

In the Bible the apostle Paul offers a clue to understanding what Davies calls "a deep enigma." Paul shows how God has revealed himself: "Because what may be known about God is manifest among them ["men who are suppressing the truth"], for God made it manifest to them. For his 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, so that they are inexcusable."

Moon and planets: NASA photo

Some evolutionists, in effect, say that our existence on earth is "as if we had won a million-dollar lottery a million times in a row."

(Romans 1:18-20)* Yes, the endless variety of life forms, their incredible complexity, their exquisite design, should lead a humble, reverent person to recognize that there is a supreme power, intelligence, or mind vastly superior to anything that man has ever known. —Psalm 8:3, 4.

Paul's further words regarding those who reject God give one pause for thought: "Although asserting they were wise, they became foolish . . . , even those who exchanged the truth of God for the lie and venerated and rendered sacred service to the creation rather than the One who created, who is blessed forever. Amen." (Romans 1:22, 25) Those who venerate "nature" and reject God are certainly not wise from Jehovah's viewpoint. Bogged down in the morass of conflicting evolutionary theories, they fail to recognize the Creator and the intricacy and design of his creation.

"Monstrous Series of Accidents"

Paul also wrote: "Without faith it is impossible to please him [God] well, for he that approaches God must believe that he is and that he becomes the rewarder of those earnestly seeking him." (Hebrews 11:6) Faith based on accurate knowledge, not credulity, can lead us to an understanding of why we exist. (Colossians 1:9, 10) Surely, credulity is involved when some scientists would have us believe that life exists because it is "as if we had won a million-dollar lottery a million times in a row."

British scientist Fred Hoyle theorized that nuclear reactions that led to the formation of two elements essential to life, carbon and oxygen, produced a balanced relative amount of these elements only because of a fortunate accident.

He gives another example: "If the combined masses of the proton and electron were suddenly to become a little more rather than a little less than the mass of the neutron, the effect would be devastating. . . . Throughout the Universe all the hydrogen atoms would immediately break down to form neutrons and neutrinos. Robbed of its nuclear fuel, the Sun would fade and collapse." The same would be true of the billions of other stars in the universe.

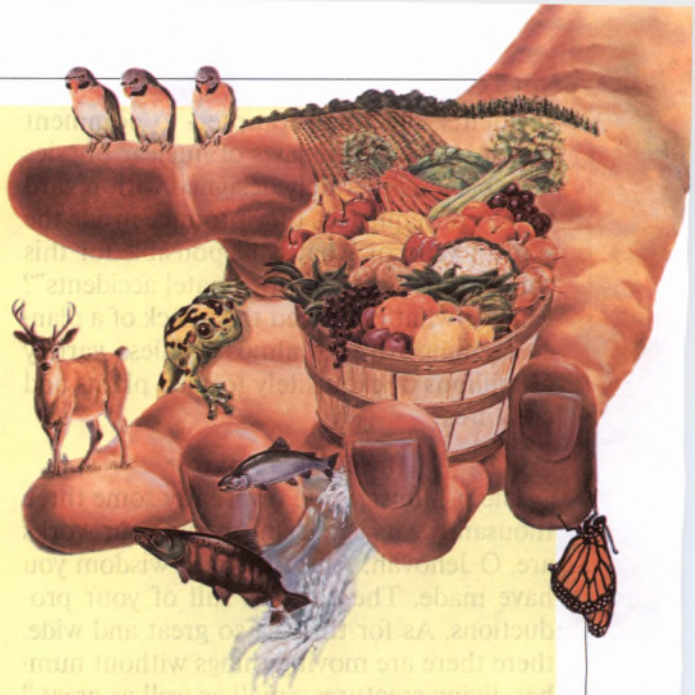
Hoyle concluded: "The list of . . . apparent accidents of a non-biological nature without which carbon-based and hence human life could not exist, is large and impressive." He says: "Such properties [essential to life] seem to run through the fabric of the natural world like a thread of *happy accidents*. But there are so many of these *odd coincidences* essential to life that some explanation seems required to account for them."—Italics ours.

He also stated: "The problem is to decide whether these apparently coincidental tunings are really accidental or not, and therefore whether or not life is accidental. No scientist likes to ask such a question, but it has to be asked for all that. Could it be that the tunings are intelligently deliberate?"

Paul Davies writes: "Hoyle was so impressed by this 'monstrous series of

* "Ever since God created the world his everlasting power and deity—however invisible—have been there for the mind to see in the things he has made."—Romans 1:20, *Jerusalem Bible*.

Endless Variety and Design



Insects "Scientists discover from 7,000 to 10,000 new species of insects every year," states *The World Book Encyclopedia*. Yet, "there may be from 1 million to 10 million species still undiscovered." The French newspaper *Le Monde*, as quoted in the *Guardian Weekly*, in an article by Catherine Vincent, speaks of the species that have been documented as a "pathetically small number compared with the actual number . . . put at anything between 5 and, incredibly, 50 million."

Think of the world of amazing insects —bees, ants, wasps, butterflies, cockroaches, ladybugs, fireflies, termites, moths, houseflies, dragonflies, mosquitoes, silverfish, grasshoppers, lice, crickets, fleas—just to begin with! The list seems endless.

Birds What can we say about a bird that weighs less than an ounce? "Picture it migrating more than 10,000 miles a year from Alaska's tree line to the rain forests of South America and back, skimming wooded peaks, skirting urban skyscrapers, and crossing vast stretches of open water in the Atlantic Ocean and Gulf of Mexico." Which incredible bird is this? "The blackpoll warbler [*Dendroica striata*], a dynamo whose traveling prowess is virtually unrivaled among North America's land birds." (*Book of North American Birds*) Again we ask: Is this the result of myriads of quirks of nature that just happened to come out right? Or is it a wonder of intelligent design?

Add to these examples the birds that have a seemingly endless repertoire of songs: the nightingale, known throughout Europe and parts of Africa and Asia for its delightful calls; the northern mockingbird of North America, a bird that is "a skillful mimic and incorporates memorized phrases as part of its song"; the superb lyrebird of Australia, with its "highly developed song, with elements of astonishingly clever mimicry."—*Birds of the World*.

In addition, the perfection of the colors and the wing and feather design of so many birds leaves one gasping in amazement. Add to this their skills at weaving and making nests, whether on the ground, in cliff faces, or in trees. Such innate intelligence has to impress the humble mind. How did they come to exist? By chance or by design?

The Human Brain "There may be from ten trillion to one hundred trillion synapses in the brain, and each one operates as a tiny calculator that tallies signals arriving as electrical impulses." (*The Brain*) We tend to take the brain for granted, yet it is an intricate universe contained and protected in the cranium. How did we come to have this organ that allows humans to think, to reason, and to speak thousands of languages? Through millions of lucky gambles? Or by intelligent design?

accidents,' he was prompted to comment that it was as if 'the laws of nuclear physics have been deliberately designed with regard to the consequences they produce inside the stars.'" Who or what is responsible for this "monstrous series of [fortunate] accidents"? Who or what produced this speck of a planet, teeming with an almost endless variety of millions of exquisitely formed plants and creatures?

The Bible's Answer

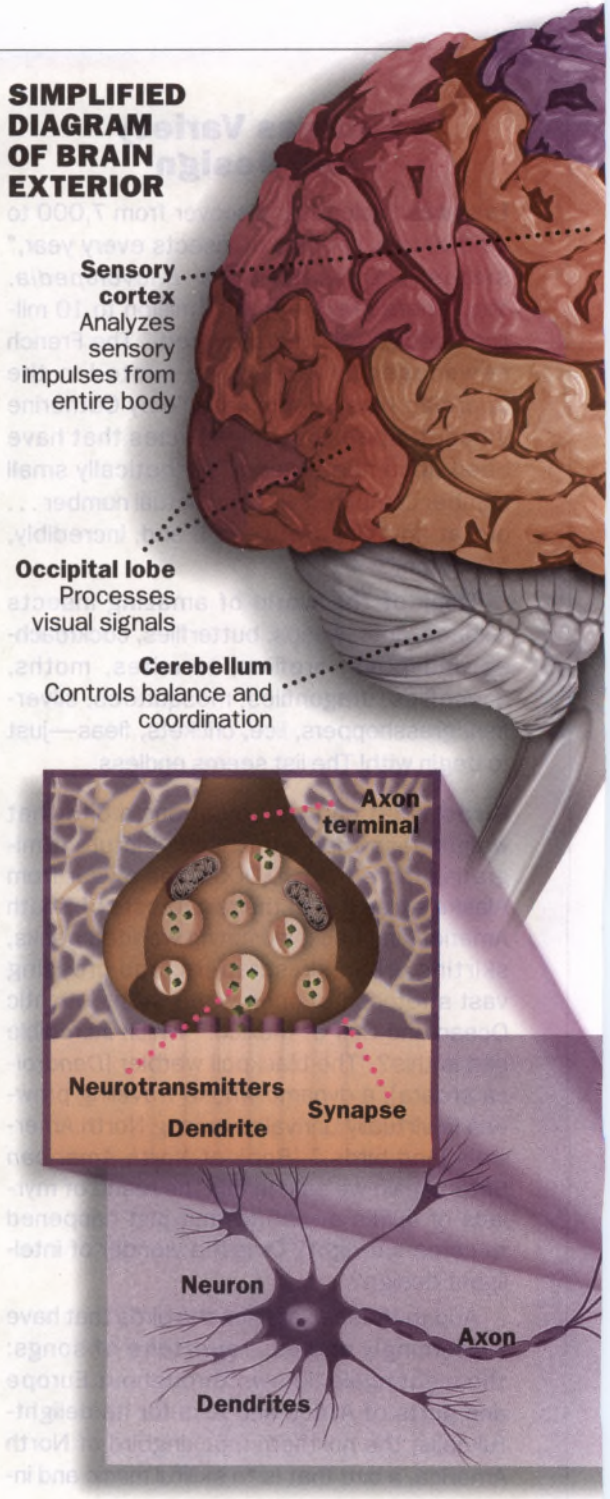
The psalmist wrote reverently some three thousand years ago: "How many your works are, O Jehovah! All of them in wisdom you have made. The earth is full of your productions. As for this sea so great and wide, there there are moving things without number, living creatures, small as well as great." —Psalm 104:24, 25.

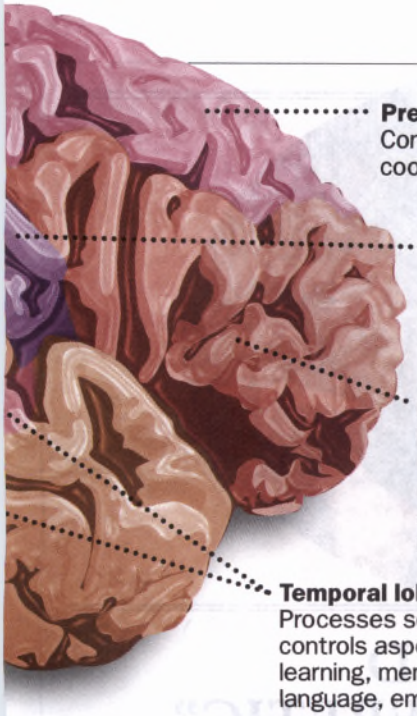
The apostle John said: "You are worthy, Jehovah, even our God, to receive the glory and the honor and the power, because you created all things, and because of your will they existed and were created." (Revelation 4:11) Life is not the result of blind chance, of some cosmic lottery that happened to churn out winners for millions of life forms.

The simple truth is that God "created all things, and because of [his] will they existed and were created." Jesus Christ himself said to the Pharisees: "Did you not read that he who created them from the beginning made them male and female?" Jesus knew the Creator! As Jehovah's Master Worker, he had been alongside Him during creation.—Matthew 19:4; Proverbs 8:22-31.

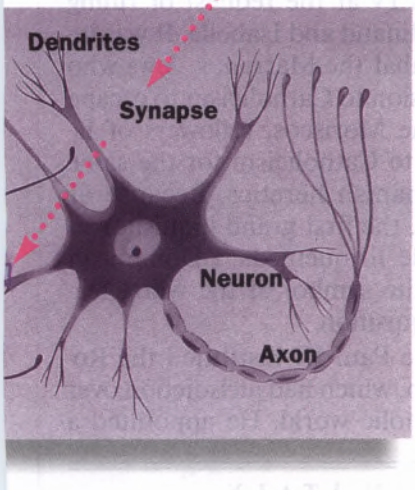
However, it requires faith and humility to perceive and accept this basic truth about the Creator. This faith is not blind credulity. It is based on tangible, visible evidence. Yes, "[God's] invisible qualities are clearly seen from the world's creation onward."—Romans 1:20.

SIMPLIFIED DIAGRAM OF BRAIN EXTERIOR





"There may be from ten trillion to one hundred trillion synapses in the brain, and each one operates as a tiny calculator that tallies signals arriving as electrical impulses."—*THE BRAIN*



With our present limited scientific knowledge, we cannot explain how God created. Therefore, we should acknowledge that at present we cannot know or understand everything about the origin of life. We are reminded of this when we read Jehovah's words: "The thoughts of you people are not my thoughts, nor are my ways your ways . . . For as the heavens are higher than the earth, so my ways are higher than your ways, and my thoughts than your thoughts."—Isaiah 55:8, 9.

The choice is yours: either credulous belief in blind and fortuitous evolution, the numberless gambles that supposedly paid off, or faith in the Purposer-Creator-Designer, Jehovah God. The inspired prophet rightly said: "Jehovah, the Creator of the extremities of the earth, is a God to time indefinite. He does not tire out or grow weary. There is no searching out of his understanding."—Isaiah 40:28.

So, what will you believe? Your decision will make a big difference in your future life prospects. If evolution were true, then death would mean total oblivion, in spite of the specious arguments of labyrinthine Catholic theology, which attempts to introduce the "soul" into evolution.* Man has no immortal soul to soften the inevitable blow of mortality.—Genesis 2:7; Ezekiel 18:4, 20.

If we accept that the Bible is true and that the living God is the Creator, then there is the promise of the resurrection to eternal life, perfect life, on an earth restored to its original state of balance and harmony. (John 5:28, 29) Where will you put your faith? In the unbelievable gamble of Darwin's evolution theory? Or in the Creator, who has acted with purpose and continues to do so?#

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* See "Watching the World," page 28, "Pope Reaffirms Evolution."

\# For a detailed discussion of the matter, see the book *Life—How Did It Get Here? By Evolution or by Creation?*, published by the Watchtower Bible and Tract Society of New York, Inc.

THE TRIAL AND EXECUTION OF A "HERETIC"

ON ONE side of the dismal courtroom stands the lofty, imposing bench of the judges. The chairman's seat in the center is covered by a dark cloth canopy, surmounted by a large wooden cross that dominates the whole chamber. Before it, stands the dock.

This is how courts of the grim Catholic Inquisition were often described. The terrifying charge brought against the hapless defendants was "heresy," a word that conjures up pictures of torture and execution by burning at the stake. The Inquisition (from the Latin verb *inquiro,* "to inquire into") was a special ecclesiastical tribunal instituted to stamp out heresy, that is, opinions or doctrines out of line with orthodox Roman Catholic teaching.

Catholic sources state that it was instituted in stages. Pope Lucius III established the Inquisition at the Council of Verona in 1184, and its organization and procedures were perfected—if such a word can be used to describe that fearsome institution—by other popes. In the 13th century, Pope Gregory IX established inquisitorial tribunals in various parts of Europe.

The infamous Spanish Inquisition was established in 1478 with a papal bull issued by Pope Sixtus IV at the request of ruling sovereigns Ferdinand and Isabella. It was instituted to combat the Marranos, Jews who feigned conversion to Catholicism to escape persecution; the Moriscos, followers of Islam converted to Catholicism for the same reason; and Spanish heretics. Because of his fanatic zeal, the first grand inquisitor in Spain, Tomás de Torquemada, a Dominican friar, became the symbol of the worst features of the Inquisition.

In 1542, Pope Paul III instituted the Roman Inquisition, which had jurisdiction over the whole Catholic world. He appointed a

The Complete Encyclopedia of Illustration/J. G. Heck

BY *AWAKE!* CORRESPONDENT IN ITALY

central tribunal of six cardinals, called the Congregation of the Holy Roman and Universal Inquisition, an ecclesiastical body that became "a government of terror that filled the whole of Rome with fear." (*Dizionario Enciclopedico Italiano*) The execution of heretics terrorized those lands where the Catholic hierarchy held sway.

The Trial and the Auto-da-fé

History establishes that the inquisitors tortured those accused of heresy in order to extract a confession. In an effort to minimize the Inquisition's guilt, Catholic commentators have written that at the time, torture was commonplace in secular tribunals too. But does that justify such activity by ministers who claimed to be representatives of Christ? Should they not have shown the compassion that Christ showed for his enemies? To view this objectively, we might reflect on one simple question: Would Christ Jesus have used torture on those who differed with him on his teachings? Jesus said: "Continue to love your enemies, to do good to those hating you."—Luke 6:27.

The Inquisition did not guarantee the accused any justice. In practice, the inquisitor had unlimited powers. "Suspicion, accusations, even hearsay, were enough for the inquisitor to summon a person to appear before him." (*Enciclopedia Cattolica*) Italo Mereu, a law historian, affirms that it was the Catholic hierarchy itself that conceived and adopted the inquisitorial system of justice, abandoning the ancient accusatory system founded by the Romans. Roman law required that an accuser prove his allegation. If there was any doubt, it was better to acquit than to run the risk of condemning someone who was innocent. The Catholic hierarchy replaced this fundamental principle with the idea that suspicion presupposed guilt, and it was the defendant who had to demonstrate his innocence. The names of prosecution witnesses (informers) were kept secret, and the defense lawyer, when there was one, ran the risk of infamy and of losing his post if he defended the supposed heretic successfully. As a result, admits the *Enciclopedia Cattolica,* "the accused were effectively defenseless. All that the lawyer could do was advise the guilty one to confess!"

The trial culminated in the auto-da-fé, a Portuguese expression meaning "act of the faith." What was it? Period drawings show that ill-fated defendants accused of heresy became the victims of a ghastly spectacle. The *Dizionario Ecclesiastico* defines the auto-da-fé as a "public act of reconciliation performed by condemned and repentant heretics" after their conviction was read.

The conviction and the execution of heretics were postponed so that several could be combined in one horrendous spectacle twice a year or more. A long procession of heretics was paraded before the onlookers, who participated with a mixture of horror and sadistic fascination. The convicted were made to climb onto a scaffold in the middle of a large square, and their sentences were read out loud. Those who recanted, that is, renounced heretical doctrines, were reprieved from the fate of excommunication and were sentenced to various punishments including life imprisonment. Those who did not recant but at the last moment made confession to a priest were delivered to the civil authorities to be strangled, hanged, or decapitated, followed by burning. The impenitent were burned alive. The execution itself took place some time later, following another public spectacle.

The activity of the Roman Inquisition was surrounded by the utmost secrecy. Even today, scholars are not permitted to consult its archives. However, patient research has brought a number of Roman tribunal trial documents to light. What do they reveal?

The Trial of a Prelate

Pietro Carnesecchi, born in Florence at the beginning of the 16th century, made rapid progress in his ecclesiastical career at the court of Pope Clement VII, who appointed him as his personal secretary. Carnesecchi's career came to an abrupt halt, however, when the pope died. Later, he became acquainted with nobility and clergy who, like him, accepted a number of doctrines taught by the Protestant Reformation. As a result, he was put on trial three times. Condemned to death, he was decapitated, and his body was burned.

Carnesecchi's confinement in prison was described by commentators as a living death. To break his resistance, he was tortured and starved. On September 21, 1567, his solemn auto-da-fé was conducted in the presence of nearly all the cardinals in Rome. Carnesecchi's sentence was read to him on the scaffold before the crowd. It ended with a customary formula and a prayer to the members of the civil court, to which the heretic was about to be delivered, to 'moderate the sentence upon his person and to provoke not death nor excess of blood.' Was this not the height of hypocrisy? The inquisitors wanted to eliminate heretics but, at the same time, pretended to ask the secular authorities to exercise mercy, thus saving face and shifting the burden of bloodguilt. After Carnesecchi's sentence was read, he was made to put on a sanbenito—a yellow sackcloth garment painted with red crosses for the penitent or a black one with flames and devils for the impenitent. The sentence was executed ten days later.

Why was this former papal secretary accused of heresy? The proceedings of his trial, which were discovered at the end of the last century, reveal that he was found guilty of 34 charges corresponding to the doctrines he contested. Among them were teachings on purgatory, the celibacy of priests and nuns, transubstantiation, confirmation, confession, prohibition of foods, indulgences, and prayers to the "saints." The eighth charge is particularly interesting. (See box, page 21.) By condemning to death those who accepted as the basis of belief only "the word of God expressed in the Holy Scriptures," the Inquisition clearly showed that the Catholic Church does not consider the Holy Bible to be the only inspired source. It is thus no surprise that many of the church's doctrines are based, not on the Scriptures, but on church tradition.

The Execution of a Young Student

The brief and moving life story of Pomponio Algieri, born near Naples in 1531, is not well-known, but it has emerged from the mists of time, thanks to the diligent historical investigations of a number of scholars. Through contact with teachers and students from various parts of Europe while he was studying at the University of Padua, Algieri was introduced to so-called heretics and to Protestant Reformation doctrines. His interest in the Scriptures grew.

He began to believe that the Bible alone is inspired, and as a result, he rejected a number of Catholic doctrines, such as confession, confirmation, purgatory, transubstantiation, and intercession of the "saints," as well as the teaching that the pope is the vicar of Christ.

Algieri was arrested and tried by the Inquisition in Padua. He told his inquisitors: "I am going back to prison willingly, maybe even to my death if that is what God wills. By means of his splendor, God will illuminate each one the more. I shall bear every torment cheerfully because Christ, the perfect Comforter of the afflicted souls, who is my illumination and true light, is able to banish all darkness." Subsequently, the Roman In-

quisition obtained his extradition and condemned him to death.

Algieri was 25 years old when he died. The day he was put to death in Rome, he refused to confess or to receive Communion. The instrument of his execution was even crueler than usual. He was not burned with bundles of wood. Rather, a large caldron full of flammable materials—oil, pitch, and resin—was positioned on the scaffold in full view of the crowd. Tied up, the young man was lowered into it, and the contents were ignited. He was slowly burned alive.

Another Source of Grave Guilt

Carnesecchi, Algieri, and others who were put to death by the Inquisition had an incomplete understanding of the Scriptures. Knowledge was yet to become "abundant" during "the time of the end" of this system of things. Nonetheless, they were willing to die for the measure of "true knowledge" that they had been able to acquire from God's Word.—Daniel 12:4.

Even Protestants, including some of their Reformers, eliminated dissidents by burning them at the stake or had Catholics killed by turning to the secular authorities. Calvin, for example, although preferring beheading, had Michael Servetus burned alive as an anti-Trinitarian heretic.

The fact that persecution and execution of heretics was common both to Catholics and Protestants by no means excuses those actions. But religious hierarchies bear further grave responsibility—for claiming Scriptural justification for the killings and then for acting as though God himself had ordered such actions. Does this not heap reproach on God's name? A number of scholars affirm that Augustine, the famous Catholic "Church Father," was the first to support the principle of "religious" coercion, that is, the use of force to combat heresy. In an attempt to use the Bible to justify the practice, he cited the words in Jesus' parable found at Luke 14:16-24: "Compel them to come in." Obviously, these words, distorted by Augustine, indicated generous hospitality, not cruel coercion.

Some Charges on Which Carnesecchi Was Found Guilty

8. "[You have maintained] that nothing other than the word of God expressed in the Holy Scriptures should be believed."

12. "[You have believed] that sacramental confession is not *de jure Divino* [according to divine law], that it was not instituted by Christ nor proved by the Scriptures, nor is any kind of confession necessary other than that to God himself."

15. "You have cast doubt on purgatory."

16. "You have considered the book of Maccabees, which deals with prayers for the dead, to be apocryphal."

It is noteworthy that even while the Inquisition was active, supporters of religious tolerance argued against the persecution of heretics, citing the parable of the wheat and the weeds. (Matthew 13:24-30, 36-43) One of them was Desiderius Erasmus, of Rotterdam, who said that God, the Owner of the field, wanted heretics, the weeds, to be tolerated. Martin Luther, on the other hand, instigated violence against peasant dissidents, and nearly 100,000 were killed.

Recognizing the grave responsibility of the religions of Christendom that promoted the persecution of so-called heretics, what should we be prompted to do? Surely we should want to search for the true knowledge of God's Word. Jesus said that the mark of a true Christian would be his love of God and neighbor—a love that obviously would leave no room for violence.—Matthew 22:37-40; John 13:34, 35; 17:3.

Should Christians Be Pacifists?

"THE CHURCHES SHOULD BECOME PACIFIST AGAIN AS THEY WERE IN THE FIRST CENTURIES OF CHRISTIANITY."

Hubert Butler, Irish writer.

AFTER a visit to Yugoslavia following World War II, Hubert Butler daringly penned the above words in an essay written in 1947 but not published until just last year! He was shocked at how "the Christian Church during the war connived at unspeakable crimes and departed very far from the teaching of Christ."

Butler was not afraid to speak out for unpopular causes or groups. When he did, he generally spoke alone. He expressed himself without fear when he contrasted the churches' behavior with the courageous stance of Jehovah's Witnesses, who were described in *The Irish Times* as "surely the most innocent and blamelessly apolitical religious sect of all." In his essay, "Report on Yugoslavia," Butler wrote that the Witnesses, who "reject[ed] all the sophistries by which war is justified by leaders in political and religious life," were put on trial by the Yugoslav authorities for their refusal to join the war movement.

Is it Scripturally correct, however, to describe Jehovah's Witnesses as pacifists? To clarify the matter, it may depend on what is meant by the word "pacifist." Butler used the term to commend the Witnesses for their bravery in refusing, at great personal cost, to take up arms in warfare. Sadly, though, many people who are caught up in the fever of war see a pacifist only as "a coward or a traitor, who [is] anxious to shirk his responsibility to his nation." Is that viewpoint correct?

Opposition to War or Violence

Webster's Ninth New Collegiate Dictionary says that a pacifist is someone who is "strongly and actively opposed to conflict and esp[ecially] war." It defines "pacifism" as "opposition to war or violence as a means of settling disputes; *specif[ically]*: refusal to bear arms on moral or religious grounds." How would these definitions apply to the believers of the early Christian congregation?

Christ Mocked/*The Doré Bible Illustrations*/Dover Publications, Inc.

They did 'refuse to bear arms on moral and religious grounds' and avoided all 'conflict and war.' Why? Because they knew that Jesus had said that his followers were "no part of the world" and that "all those who take the sword will perish by the sword." (John 15:19;

Matthew 26:52) In *The Early Church and the World,* one historian tells us that "up to the reign of Marcus Aurelius at least [161-180 C.E.], no Christian would become a soldier after his baptism." In *The New World's Foundations in the Old,* another says: "The first Christians thought it was wrong to fight, and would not serve in the army even when the Empire needed soldiers."

The Christians' commission was to preach the good news. (Matthew 24:14; 28:19, 20) They understood that they had no commission from God to wage war against his enemies, to act as God's executioners, as it were. (Matthew 5:9; Romans 12:17-21) Only when so-called Christians 'depart far from the teaching of Christ,' as Butler stated, do they get enmeshed in the wars of the nations. Then the clergy bless armies and pray for victory, often on both sides of a conflict. (Compare John 17:16; 18:36.) In past centuries, for example, Protestants and Catholics fought many bloody wars, resulting in "the horrors that [descended] on Western Europe, both sides proclaiming themselves as the instruments of God's wrath," writes Kenneth Clark in his book *Civilisation.* The arguments made to justify this kind of warfare, says McClintock and Strong's *Cyclopedia of Biblical, Theological, and Ecclesiastical Literature,* "have evidently grown out of a desire to conciliate the civil power, and are clearly opposed to the ancient Christian doctrine and to the whole spirit of the Gospel." —James 4:4.

Totally Opposed to War?

Were 'the ancient Christian doctrine and the whole spirit of the Gospel' really pacifist, however? Could early Christians truly be described as pacifists, as defined previously? No! Why not? For one thing, they *recognized God's right to wage war.* (Exodus 14:13, 14; 15:1-4; Joshua 10:14; Isaiah 30:30-32) Besides that, they never disputed God's right to authorize ancient Israel to fight for him when that nation served as his sole instrument on earth.—Psalm 144:1; Acts 7:45; Hebrews 11:32-34.

God has not only a right but also an obligation on the basis of justice to remove wicked people from the earth. Many evildoers will never respond to God's patient appeals to them to mend their ways. (Isaiah 45:22; Matthew 7:13, 14) God's toleration of evil has limits. (Isaiah 61:2; Acts 17:30) Christians, therefore, recognize that in the end God will forcibly remove evil people from the earth. (2 Peter 3:9, 10) As the Bible foretells, this will be at "the revelation of the Lord Jesus from heaven with his powerful angels in a flaming fire, as he brings vengeance upon those who do not know God and those who do not obey the good news about our Lord Jesus."—2 Thessalonians 1:6-9.

The last book of the Bible describes this conflict as *"the war of the great day of God the Almighty,"* or Armageddon. (Revelation 16:14, 16) It says that Jesus Christ will take the lead in this, that he *"carries on war in righteousness."* (Revelation 19:11, 14, 15) Jesus Christ is rightly called the "Prince of Peace." (Isaiah 9:6) But he is not a pacifist. He has already fought a war in heaven to clear it of all God's rebellious enemies. (Revelation 12:7-9) Soon he will fight another war "to bring to ruin those ruining the earth." However, his followers on earth will take no part in that divine judgment.—Revelation 11:17, 18.

True Christians love peace. They stay completely neutral in the world's military, political, and ethnic conflicts. But, strictly speaking, they are not pacifists. Why? Because they welcome God's war that will finally enforce his will on earth—a war that will settle the great issue of universal sovereignty and rid the earth of all enemies of peace once and for all.—Jeremiah 25:31-33; Daniel 2:44; Matthew 6:9, 10.

TASMANIA
Small Island, Unique Story

BY *AWAKE!* CORRESPONDENT IN AUSTRALIA

"THIS land being the first land we have met with in the South Sea, and not known to any European nation, we have conferred on it the name of *Anthoony van Diemenslandt,* in honour of [our] Hon. Governor-General." These are the words of Dutchman Abel Tasman on November 25, 1642, the day after he sighted the island of Tasmania, the second oldest Australian state.* Tasman saw no people, but he did see the smoke of distant fires and notches cut five feet apart into nearby trees. Whoever cut those notches, he wrote, either had an unusual method of climbing or were giants! In fact, the notches were for climbing.

Thereafter, Van Diemen's Land disappeared from the itinerary of oceanic explorers for 130 years, until Frenchman Marion du Fresne and Englishman Tobias Furneaux visited. Captain James Cook arrived in 1777 and, like Du Fresne, he made contact with the island's unique people, the Aborigines. His visit, however, was the beginning of a tragedy: "To some nations [Cook] opened the path of civilisation and religion," says John West in *The History of Tasmania,* "[but] to this race [Aborigines] he was the harbinger of death." What led to such a tragic outcome?

Tasmania Becomes a "Jail of the Empire"

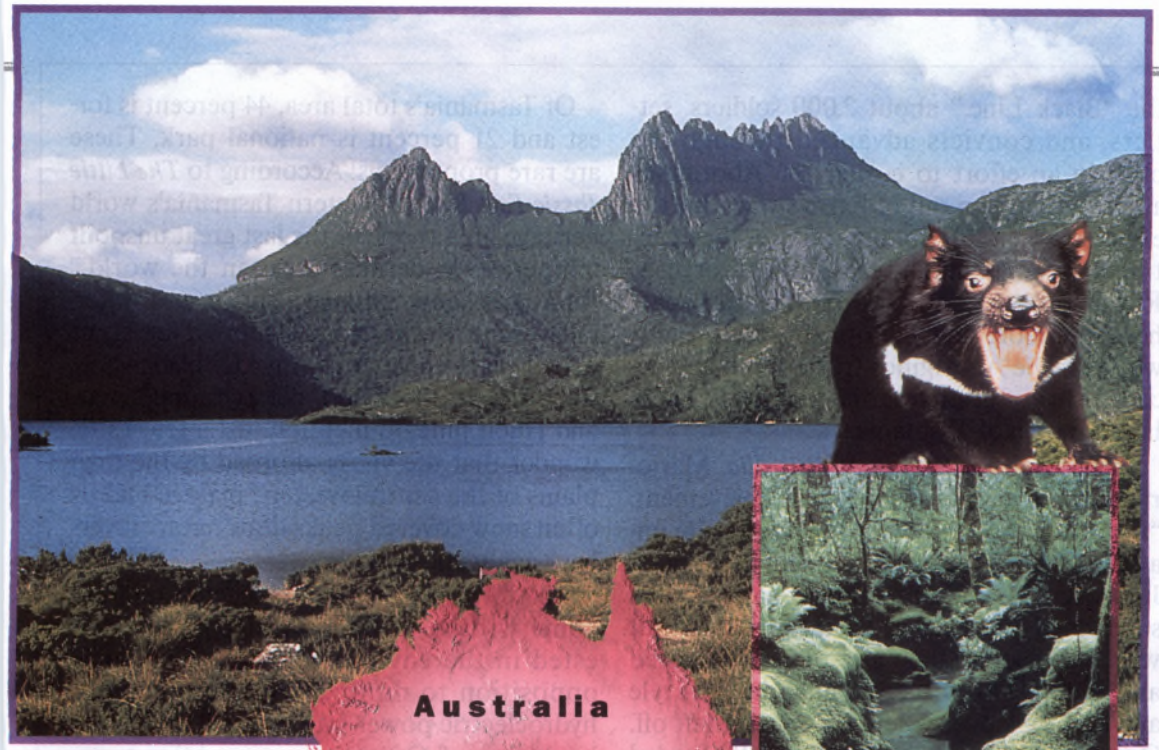
Transportation, or exile, was the British rod of discipline, and Tasmania became one of Britain's penal colonies. From 1803 to 1852, about 67,500 men, women, and even children—some as young as seven—were banished from England to Tasmania for crimes ranging from stealing prayer books to rape. Most convicts, however, worked for settlers or on government projects. "Fewer than 10 per cent . . . ever saw the inside of a penal settlement," says *The Australian Encyclopaedia,* "and many who did do so were there only for brief periods." Port Arthur, on the Tasman Peninsula, was the main penal settlement, but the toughest convicts went on to Macquarie Harbour, enshrined as "sacred to the genius of torture." The narrow harbor entrance gained the menacing name Hell's Gates.

In the book *This Is Australia,* Dr. Rudolph Brasch explains another important facet of this embryonic colony—its spirituality, or lack of it. He writes: "From the beginning, religion in Australia [including Tasmania, of course] was neglected and ignored and, at most, used and abused by the Establishment for its own advantage. The colony was established without a prayer and the first service on Australian soil seems to have been an afterthought." While the Pilgrims of North America built churches, "the early denizens of the southern world," says *The History of Tasmania,* "burned their first church to escape the tedium of attendance."

This already sick morality was infected even further by the abundance of rum. To civilian and soldier alike, rum was "the sure path to wealth," says historian John West.

Food, however, was scarce at times. During these periods freed convicts and settlers used firearms to hunt the same game the Aborigines pursued with spears. Understand-

* The name Tasmania was officially adopted on November 26, 1855. The oldest state is New South Wales.



Top: Cradle Mountain and Lake Dove

Top right: Tasmanian devil

Bottom right: Rain forest in Southwest Tasmania

Tasmanian devil and map of Tasmania: Department of Tourism, Sport and Recreation – Tasmania; Map of Australia: Mountain High Maps® Copyright © 1995 Digital Wisdom, Inc.

ably, tensions mounted. Now toss into the explosive mixture white racial arrogance, the abundance of rum, and irreconcilable cultural differences. Europeans peg out boundaries and build fences; Aborigines hunt and gather nomadically. All that was needed was a spark.

A People Vanishes

The spark came in May 1804. A posse led by a Lieutenant Moore fired, without provocation, on a large hunting party of Aboriginal men, women, and children—killing and wounding many. "The Black War"—spears and stones versus bullets—had begun.

Many Europeans recoiled at the slaughter of the Aborigines. So distressed was the governor, Sir George Arthur, that he expressed his willingness to go to almost any length to 'compensate for the injuries that government unwillingly inflicted upon the Aborigines.' Thus, he initiated a program to "round up" and "civilize" them. In a campaign called

the "Black Line," about 2,000 soldiers, settlers, and convicts advanced through the bush in an effort to corner the Aborigines and resettle them out of harm's way. But the exercise was a humiliating failure; they captured a woman and a boy. Then, George A. Robinson, a prominent Wesleyan, spearheaded a more conciliatory approach, and it worked. The Aborigines trusted him and accepted his offer of resettlement on Flinders Island, north of Tasmania.

In her book *A History of Australia,* Marjorie Barnard says of Robinson's achievement: "In reality, though he was probably quite unaware of this himself, his conciliation had a Judas touch. The unfortunate natives were segregated on Flinders Island in Bass Strait with Robinson as their guardian. They pined and died." The forced change in life-style and diet took over where the musket left off. One source says that "the last full-blooded Tasmanian Aborigine was Fanny Cochrane Smith, who died in Hobart in 1905." Authorities vary on this. Some point to Truganini, a woman who died in Hobart in 1876, others to a woman who died on Kangaroo Island in 1888. Mixed-blood descendants of the Tasmanian Aborigines are alive and well today. Added to humankind's ongoing litany of abuses, this episode has appropriately been called "the State's greatest tragedy." Moreover, it underscores the Biblical truth that "man has dominated man to his injury." —Ecclesiastes 8:9.

Tasmania's Visual Contrasts

Today, unless you visit museums, libraries, or prison ruins, you would scarcely be aware of this beautiful island's baptism of fire. Tasmania is about the same distance south of the equator as Rome, Sapporo, and Boston are north. And like its history, its geography is one of sharp contrasts, even though no place on the island is more than 71 miles from the sea.

Of Tasmania's total area, 44 percent is forest and 21 percent is national park. These are rare proportions! According to *The Little Tassie Fact Book,* "Western Tasmania's world heritage area is one of the last great unspoilt temperate wilderness areas in the world." Rain- and snow-fed lakes, rivers, and waterfalls—replete with trout—nourish forests of pencil pine, eucalyptus, myrtle, blackwood, sassafras, leatherwood, celery-topped pine, and Huon pine, to mention just a few. Little wonder that the vistas afforded by the high plains of the central-western plateau and its often snow-covered peaks draw nature lovers back again and again.

But "World Heritage" protection did not come without a fight. And people interested in the environment still simmer in opposition to mining, papermaking, and hydroelectric-power interests. The moonlike landscape of Queenstown, a mining town, is a stark reminder of the consequences of thoughtless exploitation of resources.

Native animals have suffered too—notably the thylacine, or Tasmanian tiger, a tawny, doglike marsupial. Dark stripes across its back and rump earned it the name tiger. Unfortunately, this lean, shy carnivore acquired a taste for poultry and sheep. With a bounty on its head, it was extinct by 1936.

Another unique Tasmanian marsupial, the Tasmanian devil, is far from extinct. Using his powerful jaws and teeth, this muscular 13-to-18-pound scavenger can consume the entire body of a dead kangaroo, skull and all.

Tasmania is also well-known for its short-tailed shearwater, or muttonbird. After starting out from the Tasmanian Sea and practically circumnavigating the Pacific, it returns each year to the same sandy burrow—a feat that is truly a credit to its Designer and Creator.

Nearby in its own nocturnal rookeries lives another bird—one that "flies" under-

water—the lovable, two-pound, little-beaked bundle of fur called the fairy penguin. This smallest of all penguins is also the noisiest! Its displays vary in intensity, with voice and body activity at times reaching a fever pitch. When feeling romantic, a pair may even perform a duet to confirm their attachment to each other. Sadly, though, many are killed by fishermen's gill nets, by oil spills, by plastic items mistaken for food, or by dogs and feral cats.

The Isle's More Tranquil Face

Look north or east from the edge of the central plateau and you will see Tasmania's more civilized face, with its tilled, chocolate-colored fields, meandering rivers and creeks, avenues lined with trees, and emerald pastures dotted with sheep and cattle. Near the northern town of Lilydale, around January, the lavender farms in full bloom add to this rural mosaic a pastel mauve with an alluring bouquet.

Straddling the Derwent River, not far from the apple orchards that earned Tasmania the name The Apple Isle, is the capital city Hobart, with a population of about 182,000. It is dominated by the huge bulk of moody Mount Wellington, 4,167 feet high. On a clear day, this often snow-capped sentinel offers a bird's-eye view of the city below. Hobart has indeed come a long way since 1803, when Lieutenant John Bowen and his party of 49, including 35 convicts, first put ashore at Risdon Cove. Yes, canvas sails and creaking timbers are gone, but once a year the grueling Sydney-to-Hobart yacht race hints at those earlier days as colorful spinnakers and streamlined hulls sprint past cheering crowds, right into the heart of Hobart.

From a Land of Persecution to a Spiritual Paradise

Geoffrey Butterworth, one of the 2,447 delegates at the 1994 "Godly Fear" District Convention of Jehovah's Witnesses in Launceston, reflects: "I remember when there were no more than 40 Witnesses in all of Tasmania." Now there are some 26 congregations and 23 Kingdom Halls.

"But times were not always so good," adds Geoff. "Back in 1938, for example, Tom Kitto, Rod McVilly, and I, all wearing sandwich boards, were advertising the public Bible lecture 'Face the Facts.' It was a stinging exposé of false religion to be broadcast from London via a radio network. When I joined my companions, they were being bullied by a pack of youths. And the police were just looking on! I ran to help and promptly got bashed. But a man grabbed me by the back of my shirt and dragged me away. Instead of thrashing me, the man bellowed: 'Leave them alone!' Then, to me, he quietly said: 'I know what it's like to be persecuted, mate, I'm Irish.'"

Jehovah blessed those early pioneers, for today the good news of God's Kingdom has reached all parts of this island of 452,000 people. Many descendants of the early convicts and Aborigines anticipate welcoming back onto a cleansed earth all—blacks and whites—who died so unjustly in those cruel earlier days, for the Bible promises "a resurrection of both the righteous and the unrighteous." (Acts 24:15) So thorough will this reversal be that "the former things will not [even] be called to mind."—Isaiah 65:17.

IN OUR NEXT ISSUE

Too Many Gods, Until I Found the True One

Opera in the Jungle

Beekeeping—A "Sweet" Story

Pope Reaffirms Evolution

Pope John Paul II recently issued a statement on human evolution, citing the "convergence" of independent research as "a significant argument in favour of this theory." Though not fully endorsing the teaching, John Paul II reiterated Pope Pius XII's 1950 encyclical letter, which "considered the doctrine of 'evolutionism' a serious hypothesis, worthy of investigation," according to *L'Osservatore Romano*. Trying to keep God in the picture, the pope turned to the Platonic teaching that humans have an immortal soul. Again drawing from Pius XII's encyclical, he said: "If the human body takes its origin from pre-existent living matter, the spiritual soul is immediately created by God."

Marriage in Decline

"We're witnessing the disappearance of marriage as an institution," says Jean Dumas, chief of current demographic analysis at Statistics Canada. Marriage rates in Canada are falling, especially in Quebec, according to *The Toronto Star*. A reticence to commit to tomorrow is, in some cases, due to the poor image people have of their own parents' marriages, says the report. Data collected over a 25-year period reveals that 30 percent of couples married in 1969 were no longer together in 1993. Statistics also show that more recently-married couples are divorcing. One third of all divorces in Canada in 1993 involved couples married for less than five years, up from one quarter in 1980. Marshall Fine, director of the marriage and family-therapy center at the University of Guelph, Ontario, observes: "It doesn't seem to be a very secure world for young people."

Sleep-Deprived Teens

Some sleep specialists in Australia and the United States believe that there may be more to blame for teenagers' wanting to stay in bed in the morning than

TV, rebellion, or laziness, reports *Asiaweek* magazine. Australian sleep expert Dr. Chris Seton says that hormonal changes and growth spurts could be related to many teens' inclination to sleep in. Beginning at age nine, a youngster's need for sleep increases. In a survey of 3,000 U.S. students 17 to 19 years of age, however, 85 percent were getting less than adequate sleep. *The New York Times* reports that the result is students who constantly fight drowsiness, especially in early morning classes. "We have these kids so sleep-deprived," remarks Cornell University Professor James B. Maas, "it's almost as if they are drugged." Experts believe that teens need at least eight and a half hours of sleep a night.

Diet Reduces Cancer Risk

Eating at least five servings of fruits and vegetables a day lowers a person's risk of lung, colon, stomach, and other types of cancer, reports *The Wall Street Journal*. "Powerful evidence" for this comes after more than 200 studies confirming benefits in at least 17 countries. Portions need not be very large. According to a U.S. National Cancer Institute program, qualifying portions include: "One medium piece of fruit, three-fourths cup of juice, one-half cup of cooked vegetables, one cup of fresh greens in a salad, or one-fourth cup of dried fruit." The Institute has promoted such a diet for the last five years, but at present in the United States, only 1 adult in 3 and 1 child in 5 meets the guideline. The craving for fast food seems to be limiting success. *The Wall Street Journal* notes: "Curly fries with ketchup do not count as two servings."

A Stable Population?

According to the International Institute for Applied Systems Analysis (IIASA), in Vienna, the present world population is unlikely to double. Their estimate is that the population "will grow from its present 5.75 billion to 10 billion by 2050, reach a peak of around 11 billion by 2075, and remain almost level or decline slightly towards 2100," says *New Scientist*. According to the IIASA, there is a 64-percent chance that our present global population will never double. Their figures show that fertility rates appear

to have declined in every region of the world in 1995.

Battery-Free Radio

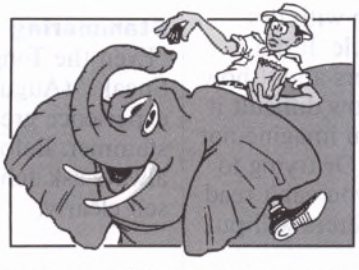
To cope with the lack of electricity and the poor availability of batteries in much of rural Africa, a small factory near Cape Town, South Africa, is manufacturing a portable radio with a built-in hand-cranked generator. "Give the handle a few aerobic turns," reports *The New York Times,* and it "holds forth for half an hour." In spite of being the size of a lunch box and weighing six pounds, the new model seems destined for success. According to Siyanga Maluma, who heads the factory's marketing operation, if the radio is played five to ten hours a day, it will save $500 to $1,000 in batteries over three years. Along with the bicycle and the motorcycle, "a radio is one of the three big African status symbols," states Maluma. "Make no mistake," he asserts. On the basis of just owning a radio, "you can procure a wife."

Killer Rain

Acid rain has contributed indirectly to the deaths of many Scandinavian elk, according to Swedish scientist Dr. Adrian Frank. To counteract the effects of the contaminated rain, lime is put on fields and in lakes. However, plants growing in limed soil show an increase in the level of certain elements, particularly molybdenum. When elk absorb too much molybdenum, it causes a lethal deficiency in copper that seriously affects the animals' immune systems. As a further result of acid rain, in more than 4,000 of Sweden's lakes, fish cannot now survive and the trout population in Norway is down to half of previous levels. *The Sunday Telegraph* of London notes that although the British government is reducing the sulfur emissions from its power stations to control the source of contamination, the residual effects of acid rain can continue for many years.

Training African Elephants

Asian elephants have been used for centuries as work animals. Their larger African cousins, however, have been thought to be too aggressive to tame. But at least one experiment has enjoyed apparent



success. African elephants are being used in the Imire game reserve of Zimbabwe to plow fields and to carry rangers into hard-to-reach areas. The training method used is called "love and reward." A reporter for an African newspaper watched an elephant named Nyasha plow a field, with a laborer, Muchemwa, riding on its back. "Every now and then," the reporter explained, "he stretched his trunk back and Muchemwa popped a high-protein game cube into it." The report continued: "Nyasha and the six other trained elephants at Imire will be used to prepare fields before the next rains for crops such as maize, which will be used to feed them and the other animals on the farm."

Supplements Made From Blood

Prothemol, an experimental protein supplement, is being used in northeastern Brazil to address the region's problem of malnutrition. According to an *Associated Press* report, the product is based primarily on cow's blood obtained from slaughterhouses, which is said to be "even more nutritious than meat." Similar experiments were made in Guatemala, in 1990, with a product called "Harina de Sangre" (blood flour). In Brazil the state arranged for Prothemol to be distributed from house to house, "giving out the supplement and keeping tabs on the children who took it." Previously, slaughterhouses in Brazil's northeast simply disposed of the blood, as is directed in the Bible.—Leviticus 17:13, 14.

Armies of Children

A quarter of a million children, some as young as seven, are serving in armed forces around the world, according to research done in 26 countries and reported in the *Guardian Weekly* of Manchester, England. The report, part of a two-year United Nations study, revealed that child recruits were themselves brutalized, often by being forced to witness the torture and death of relatives. Thereafter, they were used as executioners, assassins, and spies. In one country, "most child soldiers had been ordered to torture, maim or kill children or adults attempting to escape." Children, often given drugs or alcohol before fighting, have been seen rushing into battle "as though they were immortal or impervious."

FROM OUR READERS

Dyslexia I am writing to express my sincere thanks for the article "Overcoming the Frustration of Dyslexia." (August 8, 1996) After reading the box "How to Recognize Dyslexia in Children," my husband and I had our ten-year-old son assessed. We found that he does suffer from dyslexia, and we are now taking steps to give him the help he needs, both at home and at school. His teachers had always told us that he is a very capable child but that he would not apply himself. You can therefore imagine how grateful we are that this article was published.

J. S., Scotland

As the mother of two children with dyslexia, I rejoiced to read this article. It did a wonderful job of educating others about how very real this disability is and how difficult it is for those who have it. Can you imagine not being able to read a street sign? Or trying to order food from a menu when you can't read what it says? I am sure that sufferers will put the information to good use.

M. K., United States

Endangered Species Heartfelt thanks for the series "Endangered Species—Why Be Concerned?" (August 8, 1996) We really are running the risk of losing a treasure. The article kept alive my desire to live in God's promised new world, where animals will be able to live without the threat of extinction.

D. I., Albania

Refugee Crisis I am a refugee from Burundi, and I would like to express my appreciation for the series "The Refugee Crisis —Will It Ever End?" (August 22, 1996) I was greatly encouraged to learn Jehovah's viewpoint on this matter and how, in ancient times, he had his people treat refugees with loving kindness. I thank you for the articles; they really comforted me.

D. M., Kenya

Bus Tragedy While reading the article "Overcoming Tragedy in Jehovah's Strength" (August 22, 1996), I could not help but cry because it hit close to home. I too was involved in an accident, along with my closest friend. She died a few hours later as a result of extreme injuries. Over the course of the next five years, I came to grips with the intense feelings of grief and guilt I had because I survived and she did not. I trust in Jehovah that he will remember my dear friend. My heart also goes out to those whose loved ones were lost in this tragedy in Spain.

J. T., United States

Stammering Thank you for the article "Even the Tongue of Stammerers Will Speak." (August 22, 1996) Petr Kunc's experience greatly strengthened me. I too stammer. Before giving a Bible discourse, I always ask Jehovah to help me express myself clearly.

M. M., Italy

When I turned 20, I found myself having a hard time speaking to others and from the platform at the Kingdom Hall of Jehovah's Witnesses. After an assignment, I would drip with sweat and feel an extraordinary fatigue. It is really a great encouragement to read an experience of a fellow Christian serving Jehovah despite this problem. It has helped me have a positive view of things.

M. S., Japan

I am moved to thank you for publishing this experience. I have had the same problem since childhood. Like Petr, I serve as an elder in the congregation, and I have to rely on Jehovah for strength in accomplishing my assignments. I now conduct the Theocratic Ministry School, helping others with their speaking.

N. O. N., Nigeria

Count the Cost of Moving!

BY *AWAKE!* CORRESPONDENT IN SOUTH AFRICA

ARE you thinking about moving to another country? Have you counted the cost? We do not mean just the financial cost. After all, most people consider moving for economic security anyway. We mean the hidden costs that become apparent only after the physical move is over. By then it is usually too late to retrace your steps. The following points are not intended to alarm you, but they are worth considering:

"Learning a new language takes humility and effort. It is hard for an adult to find that even small children think he is weird because they cannot understand him. To keep on blundering while constantly being laughed at for your mistakes is a tremendous test of pride to many. Life is unbearably lonely for foreigners who cannot speak the local language."—Rosemary, a missionary in Japan.

Perhaps you feel that you know enough of the language to get by. But are you sure that your entire family knows enough to be happy about the move?

What would be the effect on the family if some members were cajoled into migrating against their will? "Some women [from Mexico]," says the journal *Psychology of Women Quarterly*, "played no role in the decision process to migrate and did not want to immigrate in the first place, nor did they wish to remain in the United States after migration." Under such circumstances, a forced move could damage family unity. But what if the breadwinner moves on his own?

It is estimated in the book *Population, Migration, and Urbanization in Africa* that in one small rural country of southern Africa, over 50 percent of the "adult males are absent at any given time." This absence can rob the family of contentment and stability. It also leaves open the possibility of the marriage partners' succumbing to immorality. How much better when the family, whether it decides to migrate or not, is able to remain together! Family unity is something money cannot buy.

Then, there is the heavy burden of coping with prejudice. "Not until I came to England did I discover 'colour,'" recalls an Indian migrant. "That [realization] was terrible. A bitter shock. I wanted to go home, to get away from it all."—*The Un-melting Pot*.

So before making the move, ask yourself: 'What are the alternatives? Could we not make adjustments at home? Would moving to another country really be worth it?' It may or may not be, but before you decide, consider this good advice from Jesus: "Who of you that wants to build a tower does not first sit down and calculate the expense, to see if he has enough to complete it?"—Luke 14:28.

Il dilemma delle 'vacche pazze' in Gran Bretagna

Dal corrispondente di *Svegliate!* in Gran Bretagna

NEL novembre 1986 fece per la prima volta la sua comparsa fra il bestiame inglese un'inquietante malattia. Da allora più di 11.000 capi si sono infettati, e ogni settimana vengono denunciati 200 nuovi casi.

Sebbene il nome di questa malattia sia encefalite spongiosa del bovino, abbreviato BSE (dall'inglese *bovine spongiform encephalopathy*), i mezzi di informazione la soprannominarono subito malattia della "vacca pazza" a causa dei pensosi sintomi che produce.

Cos'è la BSE, come ha avuto origine e perché preoccupa tanto?

Si tratta di una forma di demenza provocata da proteine anormali dette "agenti infettivi non convenzionali" che distruggono sezioni del cervello. Visto al microscopio, l'organo colpito ha un aspetto spugnoso e bucherellato. Col progredire della malattia, l'animale diventa irritabile e dimagrisce, e quando non riesce più a controllare gli arti, cade e muore o dev'essere abbattuto.

Il bestiame ha contratto questa forma di encefalite da una malattia detta "scrapie" (enterite dissenterica degli ovini da Mycobacterium paratubercolare), una forma di demenza molto affine e comune fra gli ovini inglesi. Com'è accaduto?

Il mangime usato oggi per il bestiame

La mucca è un ruminante che normalmente vive di vegetazione, soprattutto di erba. Negli ultimi anni, però, i fabbricanti inglesi di mangime hanno aggiunto ai normali mangimi un innaturale integratore proteico consistente di scarti di macello (tra cui anche carogne di pecore malate di scrapie), scarti che vengono schiacciati, cotti ed essiccati. Non sono stati colpiti solo i bovini, ma negli zoo inglesi sono morti di cerebropatie anche cinque tipi di antilopi, tra cui un raro orice bianco. Erano stati tutti alimentati con questo mangime commerciale. I visoni d'allevamento hanno contratto una malattia simile, e si crede che questo sia avvenuto perché sono stati alimentati con interiora crude di pecora.

I test rivelano che sia l'agente dell'encefalite del bovino che quello dell'enterite dissenterica degli ovini sono insolitamente resistenti alle alte temperature, alla radiazione ionizzante e alla luce-ultravioletta. Questi misteriosi agenti non vengono uccisi con la normale cottura e altre forme di sterilizzazione. Benché non ci siano prove sicure che persone siano mai state infettate dall'enterite dissenterica degli ovini, ora ci si chiede preoccupati: Che rischio rappresenta la malattia della "vacca pazza" per chi mangia carne bovina?

Svegliate! 8 novembre 1990

L'uomo, un anello della catena?

"La BSE non costituisce un motivo di preoccupazione né in questo paese né in nessun altro luogo"; questo è il pensiero ufficiale del governo britannico, espresso da John Gummer, ministro dell'Agricoltura. Ma non tutti ne sono altrettanto sicuri. Richard Lacey, professore di microbiologia clinica presso l'Università di Leeds (Inghilterra), scrive sul giornale *The Independent:* "Se la vacca ha preso la malattia dal mangime, essa è stata trasmessa, almeno inizialmente, per via orale. Di qui la possibilità che sia trasmessa oralmente all'uomo".

Sulla base di questo ragionamento, la Germania ha vietato qualsiasi importazione di carne bovina inglese perché non può avere la garanzia che provenga da mandrie esenti da questa malattia. Gli Stati Uniti hanno vietato le importazioni di bestiame, embrioni e seme di bestiame dalla Gran Bretagna. L'Unione Sovietica ha fatto un passo in più, vietando anche le importazioni di carne inglese di pecora e di capra, insieme ai latticini, a causa dell'encefalite del bovino. Alcune scuole inglesi hanno deciso di servire alla mensa solo carne bovina proveniente da mandrie dichiarate esenti dalla malattia.

Il governo, fra le varie misure adottate, ha vietato la vendita di certe interiora di bovini. Il pubblico inglese spende annualmente oltre 3.500 miliardi di lire in carne bovina e piatti a base di questa carne, come hamburger e pasticci di carne, e ha bisogno di sapere con certezza che la sua salute non è in pericolo. Tuttavia, "può passare un decennio o più prima di essere in grado di rassicurare completamente" il pubblico sul fatto che questa malattia non si trasmette dal bestiame all'uomo, ammette un rapporto governativo ufficiale. "La difficoltà", spiega il dott. Richard Kimberlin, ex direttore dell'Unità di Neuropatogenesi di Edimburgo, "sta nella lunghezza del periodo di incubazione. Se la BSE costituisce un rischio per la salute pubblica, allorché questo sarà divenuto manifesto con un aumento nel numero di persone affette dal morbo di C.-J., sarà troppo tardi per fare qualsiasi cosa per la popolazione più esposta".

Gli scienziati intanto cercano urgentemente nuove e sicure prove per dissipare questi timori, e il governo inglese ha stanziato oltre 23 miliardi di lire per le ricerche. Ma il *British Medical Journal* fa notare realisticamente: "L'innocuità della carne bovina non è stata ancora provata e può non essere provabile".

La mangereste?

Quali che siano le conseguenze per la salute dell'uomo, il dibattito suscitato dall'encefalite del bovino ha richiamato l'attenzione del pubblico sulla pratica di riciclare gli scarti animali. I bovini e i polli inglesi continuano ad essere alimentati con sottoprodotto essiccato dei polli (noto sul mercato inglese con la sigla DPM, un miscuglio trattato di escrementi, penne e volatili morti). Ai vitelli viene dato sangue essiccato di maiale, insaporito con cioccolato. Sebbene dal luglio del 1988 sia illegale impiegarle come mangime per il bestiame, teste e interiora di pecora vengono ancora macinate e date da mangiare a suini e polli. Tali pratiche sono condannate e definite "innaturali" in un rapporto governativo ufficiale. Alcuni le giustificheranno per motivi di convenienza e di economia nella produzione alimentare. Ma sotto il profilo della salute, ne vale la pena?

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Vacuoli (cavità) nel cervello di una vacca colpita da encefalite spongiosa

* Il morbo di C.-J. (morbo di Creutzfeldt-Jacob) è un disturbo che colpisce l'uomo simile all'encefalite spongiosa del bovino ed è causato da un agente simile. La demenza insorge rapidamente, e a un anno dalla diagnosi il malato è totalmente incapace. Il morbo di C.-J. può essere trasmesso attraverso trapianti di sangue e trapianti di tessuto. Quasi 2.000 persone in Gran Bretagna e 7.000 negli Stati Uniti sono potenziali a rischio per avere ricevuto iniezioni di ormoni della crescita ottenuti da ipofisi di cadaveri. Il dott. Paul Brown, direttore degli Istituti Sanitari Nazionali (USA), dice: "Qualsiasi organo proveniente da un paziente affetto dal morbo di C.-J. è una potenziale bomba a orologeria".

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AWAKE! SAID IT IN 1990

RECENTLY, the spread of "mad-cow disease" has caused great alarm in Europe. Many fear that the illness can be transmitted to humans. Some also believe that there is a link between consumption of meat from infected animals and the development of Creutzfeldt-Jakob disease, a progressive and inevitably fatal disease of the human central nervous system. Not surprisingly, as news of mad-cow disease spread, beef consumption plummeted.

Interestingly, Stefania Ferrari wrote in the May 1996 issue of the Italian periodical *TuttoReggio:* "We have come across a magazine that was already speaking about this disastrous plague in 1990—*Awake!*, published by Jehovah's Witnesses." The article she referred to is entitled "Britain's 'Mad Cow' Dilemma" and appeared in the issue of November 8, 1990. After quoting the opening four paragraphs, Ferrari expressed her astonishment that this article appeared "six years before the whole business was brought before the attention of the public worldwide."

She continued: "On seeing this 1990 article that reported such incredibly up-to-date information, some have said: 'If Jehovah's Witnesses knew about such a serious and important matter, why didn't they bring it to the attention of everyone, even those who do not belong to their congregations?' Let's be honest: If one of Jehovah's Witnesses had knocked on our door in 1990 showing us the Bible and that article published in their magazine, how many of us who follow a different religion would have taken it seriously?"

Back in 1990, when the article "Britain's 'Mad Cow' Dilemma" was published, *Awake!* had an average printing of almost 12 million copies, in 62 languages. Jehovah's Witnesses were busy distributing this timely journal in more than 200 lands worldwide. Today, *Awake!* has an average printing of 18,350,000 copies in 82 languages. This journal continues to publish informative and up-to-date articles.