

God's Existence

by John Ronner

narrow, life-permitting window. We apparently won the mother of all Publishers Clearinghouse Sweepstakes.

One basic force of nature after another, it turns out, will not tolerate any significant tinkering, lest we all disappear. Yet these forces "coincidentally" have the perfect strengths — not too much, not too little — to grow a human-friendly universe despite mind-boggling odds.

Even common water — which covers three quarters of our planet and is an essential ingredient of all living things has caught the scientist's eye. "Water is actually one of the strangest substances known to science," declared astronomer John Barrow and mathematical physicist Frank Tipler in *The Anthropic Cosmological Principle*. Many oddball traits of water — at odds with traits of other liquids — either benefit life or are indispensable to life. One example: If water's freezing and boiling points were not by chance higher than those of other liquids, water would not be liquid at the average temperature of the Earth's surface, thus nixing life.

"Nature has been kinder to us than we had any right to expect," Princeton physicist Freeman Dyson has noted. The fact that we appear to live in a special, human-friendly universe has led to the term "the Anthropic Principle" — from the Greek word *anthropos*, meaning "man." The Anthropic Principle has rattled the common scientific idea that our universe is just a blind machine running on automatic pilot, with nobody minding the levers.

The "Fingerprint of God"

Some commentators have wondered if, therefore, astronomy has found the "fingerprint of God," as author Hugh Ross put it. The universe is so incredibly fine-tuned that God must have set the control knobs at the moment of creation, the reasoning goes.

Those who see God's hidden hand in our complicated but perfectly ordered universe sometimes trot out a famous 200-year-old Creator argument by William Paley: Suppose you're strolling through an open field. Suddenly, on the ground, you find a watch. Sure, you can take the watch apart (in this case, the universe), and understand how its intricate parts all logically work together (science dissecting nature). But that doesn't mean that you think the watch just assembled itself (accidental universe lacking any intelligent creator). You assume the intricate watch was designed by some kind of intelligence.

Others, like the eminent American physicist John Wheeler, have proposed that the real creator might not be a traditional Genesis

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God. Wheeler's proposed creator is humanity itself — and any other observers in the universe — doing their creating by means of a colossal feedback loop. Wheeler points to bizarre but solid experiments in physics suggesting that things must be observed before they become real and that our acts of observation might even create reality in the past retroactively — leading humans to unconsciously help create a kind of retrofitted universe, customized for us now. (The Participatory Anthropic Principle, or PAP, for short).

This kind of retroactive universe-making is illustrated by Nobel physicist Erwin Schrödinger's famous cat paradox: Imagine a cat trapped in a box. Poison gas is stored in the box. The gas will be released by a machine after an hour if a particular atom within the box decays. The gas won't be released if that atom does not decay. The odds the atom will decay are 50-50. Now, the hour is up. You have not yet looked into the box to check on the cat. At this point, quantum theory says, the cat is neither alive nor dead, the gas neither released nor unreleased, the atom neither decayed nor stable. Only when you, the observer, look inside the box does this ghostly half-world of both possibilities gel into a real world of only one possibility. Your act of observation has created "reality."

The Many Worlds Theory

But skeptics are hardly ready to hail a designer universe. Although more and more scientists accept the idea that our universe is almost unbelievably friendly to intelligent life, some scientists and laymen are offering natural alternatives to human or divine creators. The skeptics' most popular counter-strike is the "many worlds" theories that have sprung up lately in science and have attracted a wide following among leading cosmologists and others.

In these theories, based on mathematics and other data, there exist numberless parallel or sequential universes. Each of these countless universes has its own random, different laws of nature.

We are lucky enough to be living in one of the few of these universes where the set of natural laws accidentally turned out to be right for life.

Given enough time or enough universes with different laws of nature, the skeptics add, anything that is not impossible will eventually happen — even us.

So, the fact that we are here is not so special, after all, they argue. If our universe, one among quadrillions upon quadrillions of universes, did not happen by chance to be friendly to intelligent life, we wouldn't be here now to notice the "strangeness of it all" — oblivious to all the alternate universes where things didn't work out.

Skeptics also argue that the universe's human-friendly strangeness may someday be explained in a natural way when scientists accumulate more knowledge and come up with better theories.

As an example, consider the riddle of why the universe seems to be expanding at just the right speed for life to develop. Had the Big Bang exploded just a smidgen less forcefully or a smidgen more forcefully than it actually did, the universe would have either quickly recollapsed into a Big Crunch or flown apart so fast that galaxies could not form (dooming intelligent life). How tiny a deviation either way in the Big Bang's explosiveness? Prominent physicist Paul Davies has asserted that a variance of only one part in 10^{60} (in other words, one in ten with sixty zeros behind it) would have caused either a Big Crunch or a runaway lifeless universe. Davies compared this stupefying precision to a rifle marksman's hitting a one-inch target 20 billion light years away.

Other scientists have come up with similar hairline calculations. However, in recent years, some scientists have championed a new theory that they claim could provide a natural explanation for the universe's not-too-fast, not-too-slow "flatness."

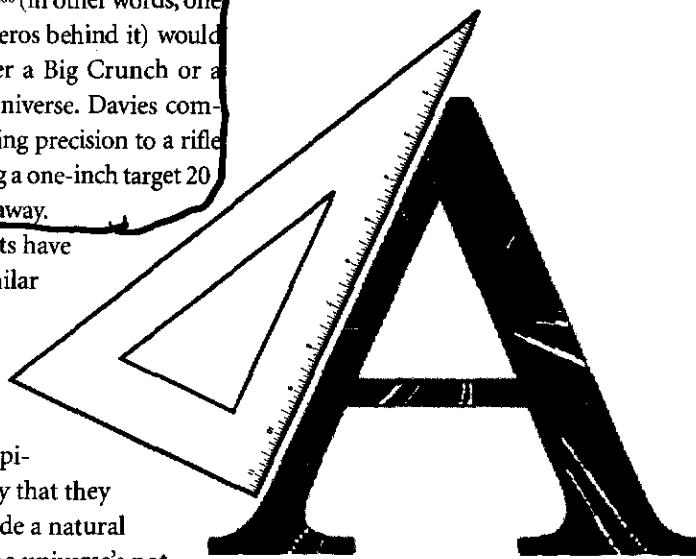
In 1981, physicist Alan Guth proposed that, during the Big Bang, the newborn universe instantly ballooned from a speck smaller than a proton to the size of a large fruit almost instantaneously! This rapid-fire birthing smoothed out the baby universe's wrinkles and delicately balanced the cosmos between a runaway expansion and a quick Big Crunch implosion, the theory argues. After this quick burst the universe kept on expanding but not nearly as fast. Not every scientist, however, feels that Guth's popular theory solves the fundamental anthropic issue.

God: Artist and Engineer?

Regardless of how that debate plays out, anthropic proponents say there is more to the universe's strangeness than even the seeming odds-defying forces of nature. They point out that our complicated universe is ironically underlaid by an uncanny order and beauty, an arresting simplicity and economy.

Indeed, scientists trying to unravel Mother Nature's riddles assume that the solutions, when finally discovered, will be the most beautiful and economical answers. In a word, they expect Mother Nature to be aesthetic, making the disputed Creator an artist as well as an engineer.

"Again and again, physicists formulating new theories to explain a natural



mystery have been rewarded by their hunch that the 'beautiful' or 'elegant' solution will be the right one," Davies commented in *God and the New Physics*.

Besides the engineer's slide rule and the artist's palette, some wonder whether God also used a protractor. Is God also a mathematician, as astronomer James Jeans once declared?

Jeans was referring to the often overlooked but odd fact that mathematics works in our world — time and again accurately describing the universe, including things that have not yet been physically explored. Physicist Eugene Wigner wrote about the "unreasonable effectiveness of mathematics in the natural sciences" while, as early as the 1600s, Galileo noticed that "the book of nature is written in mathematical language." On the other side of the coin, skeptics argue that humans have just invented, not discovered, mathematics. Davies gives a full discussion of this phenomenon in *The Mind of God*.

An Alphabet Soup of APs

Over the years, the Anthropic Principle (AP), has split into an alphabet soup of milder and bolder flavors. The most modest of the AP variations is the Weak Anthropic Principle (WAP), which merely argues that we shouldn't be surprised that the universe — or our

corner of it — is so friendly to us because nobody would be alive to observe anti-human universes or life-unfriendly parts of universes. "It is a bit like a rich person living in a wealthy neighborhood not seeing any poverty," world-renowned astronomer Stephen Hawking explained in his best-seller *A Brief History of Time*. Most scientists accept the WAP.

One notch up is the more forceful and controversial Strong Anthropic Principle (SAP), which contends that life is inevitable, the universe has no choice but to organize itself so life arises, thus making the cosmos self-aware. What's more, life couldn't exist if nature's laws were not just about exactly as they are.

The even-more-dramatic Final Anthropic Principle (FAP) argues that life is not just inevitable and foreordained; it also will never die out. On the contrary, life will finally dominate the cosmos and become all-knowing.

Naturally, the ambitious SAP and particularly the intriguing but speculative FAP have not been warmly received in all quarters. "What should one make of this quartet of WAP, SAP, PAP, and FAP?" science writer Martin Gardner wrote in the *New York Review* in 1986. "In my not so humble opinion I think the last principle is best called CRAP, the Completely Ridiculous Anthropic Principle."

Intuitions of an Anonymous Author

Throughout history, the many human-friendly coincidences, and the elegance and beauty and mathematical logic in the universe's Book of Life have all inspired an intuitive feeling in an anonymous author.

"When I see the moon and stars which Thou hast made, what is man that Thou art mindful of him?" asked the psalmist 3,000 years ago. And in 1687, during the early Modern Age, one of history's greatest physicists, Isaac Newton, wrote, "This most beautiful system of the sun, planets, and

comets could only proceed from the counsel and dominion of an intelligent and powerful Being."

In our own time, astronomer Fred Hoyle was so taken by the odd coincidence that energy levels of various elements happen to be just perfect for forming life that he remarked that "a superintellect has monkeyed with physics, as well as with chemistry and biology."

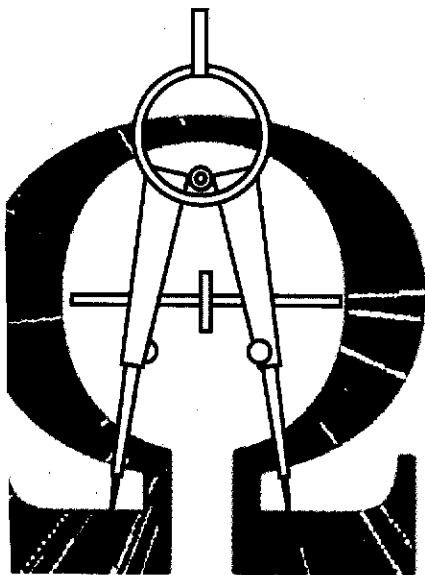
But this kind of thinking has been at odds with scientific dogma that the universe is an accidental machine and the human race just a hapless cog of no importance — an attitude that began four centuries ago with the astronomer Nicolaus Copernicus.

Copernicus showed that humanity's Earth was not the center of the universe — shocking news that he put off publicizing until after he was safely dead (when his book was published). A few years later, the Church was so upset that it put Galileo, the inventor of the telescope, on trial for promoting Copernicus' idea of a sun-centered solar system. Eventually, astronomers realized that our home is just the third rock from a garden-variety dwarf yellow star in the outskirts of the Milky Way Galaxy. As recently as the middle-twentieth century, the Copernican idea that "we're nothing special" dominated science.

Now, with the Anthropic Principle, things have come full circle — back to a debate, as in Galileo's time, whether we live in a human-centered universe.

Perhaps physicist Wheeler, the first popularizer of the cosmic Anthropic Principle, best summed up the new AP viewpoint when he remarked: "A life-giving factor lies at the centre of the whole machinery and design of the world." ■

John Ronner is a Tennessee-based writer and award-winning reporter. This article is adapted from his book *Seeing Your Future*.



Alaska. Some of the reports are so chilling they make you want to keep your hall-way light on... just in case.

James Edenshaw came within eight feet of a sleeping or resting Sasquatch in a cave in Alaska in 1982. Said witness "M. M." about his encounter in Ernest Sound, Alaska, 1992: "But she [Sasquatch] was looking pregnant and besides it was just a beautiful animal. I could have squeezed [the trigger] ten or twelve times. I had the cross hairs on her head, at the temple."

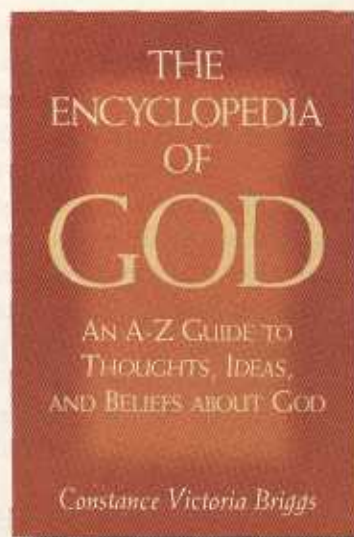
Robert Alley's *Raincoast Sasquatch* is a first in that Alaska Sasquatch reports from 1900 through mid-October 2002 are covered in detail. Alley should be applauded for doing such thorough and serious work on a subject that has been widely ridiculed.—*Daniel Perez*

The Encyclopedia of God An A-Z Guide to Thoughts, Ideas, and Beliefs About God

by **Constance Victoria Briggs**

Hampton Roads Publishing Company (Charlottesville, Va.), 2003, softcover, 221 pgs., \$15.95

At just 221 pages, this book seems to have a hard time measuring up to its title. One might expect a 20-volume set, or at least a hefty tome, given the subject. Still, an encyclopedia by any name is more inherently readable than many other kinds of books, because you do not have to start at the introduction and muddle through to the last word. You can begin on any random page and skip from one entry to an-



other. Briggs' effort is a kind of reference on the opinions of scholars, artists, politicians, religious authorities, mystics, writers, saints, prophets, philosophers, mythologists, poets, and celebrities.

They are all accommodated in her own comprehensive definition of God as "a multi-faceted entity whose characteristics have shaped" human conduct. God's encyclopedia is made up of several hundred brief entries dealing with various world traditions, but weighted heavily in favor of the Judeo-Christian tradition. Even so, she does mention that to the writers of the Old Testament, "any god of another culture was considered a false god." Score one for accuracy.

Like all efforts of this kind, Briggs' book offers so much material in such bite-size portions that it is sure to have something

for everyone. Most of the entries are hardly surprising in a work of this kind. Christ, Buddha, Zoroaster, St. Paul, Yahweh, Muhammad—they're all here. More unexpectedly, we learn what Vincent van Gogh, Della Reese, Louis Pasteur, Albert Einstein, Abraham Lincoln, and others not usually considered "spiritually minded" thought of God. Helen Keller, renowned for her personal triumphs over severe physical disabilities, believed that God was in herself, as the sun is in the color and fragrance of a flower—"the light in my darkness, the voice in my silence."

Christopher Columbus was convinced that he had fulfilled an Old Testament prophecy in Isaiah, where God says, "I am calling a man to come from the east; he will swoop down like a hawk, and accomplish what I have planned." Of course, such a generalized declaration could apply to many different men under various circumstances. But then, Columbus did discover a New World.

The famous aerospace pioneer Dr. Werner von Braun found "it as difficult to understand a scientist who does not acknowledge the presence of a superior rationality behind the existence of the universe, as it is to comprehend a theologian who would deny the advances of science."

After having seen Emanuel Swedenborg trashed on television recently, it was good to read something more favorable about the great Swedish scholar and mystic in *The Encyclopedia of God*. Swedenborg claimed direct experience with disincar-

nate entities who made his scientific work possible. He believed that "conscience is God's presence in man."

Briggs provides definitions for some spiritual mysteries which may still puzzle readers. What exactly were the Urim and Thummin, and what were they supposed to represent? And how can Westerners understand Sufism, Islamic mysticism? There are some oversights, however. In a work of this kind, we might expect something on the Holy Grail, the Delphic oracle, or the Cathars, for example. Even so, Briggs presents a varied collection of source materials, views, and definitions anyone interested in God should find useful.—*Frank Joseph*

Haunted Land Investigations into Ancient Mysteries and Modern Day Phenomena

by Paul Devereux

Piatkus (London), 2003, softcover, 240 pgs., \$16.95

In this paperback reprint of a 2001 hardcover, ley master Paul Devereux sets out to investigate why spirits are commonly and repeatedly seen in the landscape.

Houses may be haunted, to be sure, but so may roads and paths and locations. People may see ghosts anywhere, but why do different individuals see the same apparitions at the same places? Why is a woman in white seen time and again along the same routes? Who are phantom hitchhikers? What about black dogs?

Devereux begins his quest by explor-