

### 15 Answers to Scientific American's Nonsense

**Bert Thompson, Ph.D. and Brad Harrub, Ph.D.**

In the July 2002 issue of *Scientific American*, editor John Rennie penned a caustic diatribe titled “15 Answers to Creationist Nonsense.” His belligerent attitude of scientific elitism was evident in an editor’s letter at the beginning of the issue.

Readers of *Scientific American* are well placed to expose ignorance and combat antiscientific thought. We hope that this article, and a new resource center for defending evolution at [www.sciam.com](http://www.sciam.com), will assist them in doing so (2002, 287[1]:10).

Rennie previously had observed that he works primarily as a journalist, not a scientist (see “*Scientific American*. The Legacy Continues for 150 Years”)—and it does not take long to realize that this self-professed “journalist” is **long** on verbiage, but **short** on facts!

While Rennie’s article has been refuted and discredited by several creationists (see Hoesch, 2002; Sarfati, 2002; Oktar, 2002), we felt that *R&R* subscribers deserved to see our in-depth response to his attack. We want our readers to be exposed to the truth about this matter. Furthermore, we want evolutionists to know that we **can** (and **will**!) answer their arguments—point by point. The time has come for **their** “nonsense” to be exposed. [NOTE: Due to space limitations, we cannot present and refute each of Mr. Rennie’s fifteen points in the four pages of this special edition of *R&R Resources*. We therefore have chosen two that we felt were representative of the tenor of his article. Furthermore, many of the issues raised in *Scientific American* also were raised in the cover-story article of the July 29, 2002 issue of *U.S. News & World Report*, a refutation of which appears as the feature article in this month’s *Reason & Revelation*. We will not duplicate that material here. If you would like to read the complete review and refutation of both articles, visit the “Docs’ Dissections” portion of our Web site at [www.ApologeticsPress.org](http://www.ApologeticsPress.org)]

Below (in bold type) is a sampling of some of the “nonsensical” arguments Mr. Rennie believes creationists make. Our response follows. [Numbers match those in the original *Scientific American* article.]

**7. [Creationists suggest that] evolution cannot explain how life first appeared on the earth.**

Rennie tried to quietly dispense with this as an insignificant, arbitrary matter. He did admit that “**the origin of life remains very much a mystery**” (talk about understatement!), yet in the same breath suggested:

...[B]iochemists have learned about how primitive nucleic acids, amino acids and other building blocks of life could have formed and organized themselves into self-replicating, self-sustaining units, laying the foundation for cellular biochemistry. Astrochemical analyses hint that quantities of these compounds might have originated in space and fallen to earth in comets, a scenario that may solve the problem of how those constituents arose under the conditions that prevailed when our planet was young (2002, 287[1]:81).

What should be our response to all this? Evolution postulates that life arose from non-living matter as a result of a purely naturalistic, completely mechanistic, and equally mysterious process on a prebiotic Earth. This process—which parades under such monikers as abiogenesis, chemical evolution, biopoiesis, or spontaneous generation—is one of the foundational concepts of organic evolution. When British evolutionist G.A. Kerkut published his classic book, *The Implications of Evolution*, he listed the seven **nonprovable assumptions** upon which evolution is based. At the top of that list was: “The first assumption is that non-living things gave rise to living material, i.e., spontaneous generation occurred” (1960, p. 6).

A naturalistic origin of life is absolutely essential to the beginning, and thus the continuation, of evolution. **If something cannot live, it obviously cannot evolve!** What were the naturalistic origins of life on Earth? How did something nonliving give rise to something living? It is, says Rennie, “very much a mystery.”

He stated, however, that “astrochemical analyses hint that quantities of these compounds [necessary for spontaneous generation—BT/BH] might have originated in space and fallen to earth in comets.” This is becoming an all-too-familiar argument in the evolutionary camp these days. Evolutionists recognize the immense difficulty of getting life started on Earth via naturalistic processes. [For more information on this particular weakness of evolutionary theory, see also pages 65-66 of this month’s feature article.] Therefore, many of those same evolutionists have turned to outer space for the ultimate salvation of their troubled theory.

Thus, not only is the inability of **how** to get life started a serious stumbling block for evolutionists, but now the **where** of this supposed happening has been called into question as well. Fred Hoyle and Chandra Wickramasinghe have argued that life fell to Earth from space after having evolved from the warm, wet nucleus of a comet (see Gribbin, 1981; Hoyle and Wickramasinghe, 1981). Sir Francis Crick, co-discoverer of the structure of the DNA molecule, has suggested that life was sent here from other planets (1981). Meanwhile, back on Earth, Sidney Fox and his colleagues have proposed that life began on the side of a primitive volcano on our primeval planet when a number of dry amino acids “somehow” formed there at exactly the right temperature, for exactly the right length of time, to form exactly the right molecules necessary for living systems (1977). Evolutionists are fond of saying that there is no controversy whatsoever about the **fact** of evolution; it is

only the **how** about which they sometimes disagree. Not true! They cannot even agree on the **where**.

In an article with the intriguing title, “Cosmic Chemistry Gets Creative,” in the May 19, 2001 issue of *Science News*, Jessica Gorman noted that some scientists “...speculate that precursors to life might have arrived on an asteroid, meteorite, comet, or even interplanetary dust” (159:317). Yet such a scenario is not without its own set of built-in problems, as Gorman went on to note:

The next question is: Could those chemicals have traveled from their out-of-this-world venues to Earth’s surface? No one knows if the delicate chemicals could have survived the intense heat and pressure of an arrival via comet or meteorite. Nor does anyone know how an asteroid, meteorite, or comet impact might have altered Earth’s atmosphere locally, perhaps making it more friendly to life... (159:317).

Additional facets of such a scenario have to do with the extreme cold, the great distances involved in outer space travel, and the heat and shock of entering the Earth’s atmosphere. The temperature during such hypothetical trips would be near absolute zero, and constant bombardment by cosmic rays would worsen the situation. Thus, when everything is said and done, the evolutionist is right back where he started. The naturalistic beginnings of life on Earth are impossible, and the naturalistic beginnings of life in outer space are impossible. What is left?

Perhaps this would be a good time to remind Mr. Rennie of the fundamental law of biology—the law of biogenesis. This law was set forth many years ago to dictate what both theory and experimental evidence showed to be true among living organisms—that life comes only from preceding life, and perpetuates itself by reproducing only its own kind or type. Through the centuries, thousands of scientists in various disciplines have established the law of biogenesis as just that—a scientific **law** stating that life comes only from preexisting life of its kind. Interestingly, the law of biogenesis was firmly established in science long before the contrivance of modern evolutionary theories.

George G. Simpson and W.S. Beck, in their biology textbook, *Life: An Introduction to Biology*, stated that “...there is no serious doubt that biogenesis is the rule, that life comes only from other life, that a cell, the unit of life, is **always and exclusively** the product or offspring of another cell” (1965, p. 144, emp. added). Martin A. Moe, writing in *Science Digest*, put it like this: “A century of sensational discoveries in the biological sciences has taught us that **life arises only from life**” (1981, 89[11]:36, emp. added). As David Kirk correctly remarked:

By the end of the nineteenth century there was general agreement that life cannot arise from the nonliving under conditions that now exist upon our planet. The dictum “All life from pre-existing life” became the dogma of modern biology, from which no reasonable man could be expected to dissent (1975, p. 7).

J.W.N. Sullivan, brilliant scientist of a generation ago, penned these words, which are as applicable today as the day he wrote them.

The beginning of the evolutionary process raises a question which is yet unanswerable. What was the origin of life on this planet? Until fairly recent times there was a pretty general belief in the occurrence of “spontaneous generation.” ...But careful experiments, notably those of Pasteur, showed that this conclusion was due to imperfect observation, and it became an **accepted doctrine that life never arises except from life. So far as the actual evidence goes, this is still the only possible conclusion. But since it is a conclusion that seems to lead back to some supernatural creative act, it is a conclusion that scientific men find very difficult of acceptance** (1933, p. 94, emp. added).

Nobel laureate Sir Francis Crick wrote:

**An honest man, armed with all the knowledge available to us now, could only state that in some sense, the origin of life appears at the moment to be almost a miracle**, so many are the conditions which would have had to have been satisfied to get it going (1981, p. 88, emp. added).

We wonder, Mr. Rennie—are you unwilling to accept the fact that “life never arises except from life” because it “leads back to some supernatural creative act” that appears “to be almost a miracle,” and because the implication is that behind such a “creative act” there must by definition be a...Creator?

**8. [Creationists suggest that] mathematically, it is inconceivable that anything as complex as a protein, let alone a living cell or a human, could spring up by chance.**

Why is it that Mr. Rennie concentrates solely on creationists in his accusations, when his own evolutionary colleagues are the ones who have been saying the same thing?

Over the years, investigators have elucidated quite successfully what are known as the “laws of probability.” Building upon the work of such men as Blaise Pascal, the famous French mathematician and scientist, others forged the principles that are employed today on a daily basis in almost every scientific

discipline. George Gamow was one such individual (1961). Emile Borel was another. Dr. Borel, one of the world’s foremost experts on mathematical probability, formulated what scientists and mathematicians alike refer to as the basic “law of probability,” which we would like to discuss here.

Borel’s law of probability states that the occurrence of any event, where the chances are beyond one in one followed by 50 zeroes, is an event that we can state with certainty will never happen, regardless of how much time is allotted and regardless of how many conceivable opportunities could exist for the event to take place (Borel, 1962, chapters 1 and 3; see also Borel, 1965, p. 62).

With this in mind, it is interesting to examine from the scientific literature some of the probability estimates regarding the formation of life by purely mechanistic processes. For example, evolutionist Harold Morowitz estimated that the probability for the chance formation of the simplest form of living organisms would be approximately one chance in  $1 \times 10^{340,000,000}$  [or one chance out of 1 followed by 340 million zeroes!] (1968, p. 99). The magnitude of this figure is truly staggering, since there are supposed to be only around  $10^{80}$  elementary particles (electrons and protons) in the whole Universe (Sagan, 1997, 22:967).

The late Carl Sagan further estimated that the chance of life evolving on any given single planet, like the Earth, is one chance in  $1 \times 10^{2,000,000,000}$  [that is one chance out of 1 followed by 2 billion zeroes!] (1973, p. 46). This figure is so large that it would require 6,000 volumes of 300 pages each just to write the number! A number this large is so infinitely beyond one followed by 50 zeroes (Borel’s upper limit for such an event to occur) that it is simply mind-boggling. There is, then according to Borel’s law of probability, **absolutely no chance** that life “spontaneously evolved” on the Earth.

But it is not just the extreme improbability that causes us to doubt the chemical-evolution scenario; the ordered complexity of life causes us to doubt it even more. As the evolutionists themselves have admitted, there is no known mechanism that can account for items like the genetic code, ribosomes, etc. That being true, it is nothing short of astonishing to read Carl Sagan’s section on “the origin of life” in the *Encyclopaedia Britannica*. In discussing the bacterium *Escherichia coli*, Dr. Sagan noted that this one “simple” organism contains  $1 \times 10^{12}$  (a trillion) bits of data stored within its genes and chromosomes. He then observed that if we were to count every letter on every line

on every page of every book in the world's largest library (10 million volumes), we would have approximately a trillion letters. In other words, the amount of data (information) contained in approximately 10 million volumes is packed into the genetic code of the "simple" *E. coli* bacterium! Yet we are asked to believe that this marvelously complex, extremely information-rich organism, came about through purely chance processes. R.W. Kaplan, who spent years researching the possibility of the evolutionary origin of life, suggested that the probability of the simplest living organism being formed by chance processes was one chance in  $10^{30}$ . He then stated: **"One could conclude from this result that life could not have originated without a donor of information"** (1971, p. 319, emp. added).

Creationists suggest that "donor" was the Creator, and that the evolution model cannot circumvent basic laws of probability. Evolutionist Richard Dawkins once said:

The more statistically improbable a thing is, the less we can believe that it just happened by blind chance. Superficially **the obvious alternative to chance is an intelligent Designer** (1982, p. 130, emp. added).

It is not "superficial," however, to teach (as creationists do) that design implies a Designer. Nor is it superficial to advocate that our beautifully ordered world hardly can be the result of "blind chance." Even evolutionists like Dawkins admit (although they do not like having to do so) that the "obvious alternative" to chance is an intelligent Designer—which is the very point creationists have been making for years.

In his *Scientific American* article, Rennie stated:

Chance plays a part in evolution (for example, in the random mutations that can give rise to new traits), but evolution does not depend on chance to create organisms, proteins or other entities. Quite the opposite: **natural selection**, the principal known mechanism of evolution, harnesses **nonrandom change** by preserving "desirable" (adaptive) features and eliminating "undesirable" (nonadaptive) ones. As long as the forces of selection stay constant, natural selection can push evolution in one direction and produce sophisticated structures in surprisingly short times.

As an analogy, consider the 13-letter sequence "TOBEORNOTTOBE." Those hypothetical million monkeys, each pecking out one phrase a second, could take as long as 78,800 years to find it among the 2,613 sequences of that

length. But in the 1980s Richard Hardison of Glendale College wrote a computer program that generated phrases randomly while preserving the positions of individual letters that happened to be correctly placed (in effect, selecting for phrases more like Hamlet's). On average, the program re-created the phrase in just 336 iterations, less than 90 seconds. Even more amazing, it could reconstruct Shakespeare's entire play in just four and a half days (2002, 287[1]:81-82, emp. and parenthetical items in orig.).

Mr. Rennie was willing to confess that **"chance plays a part in evolution."** But he then went on to suggest that **"evolution does not depend on chance** to create organisms, proteins or other entities" because "natural selection...harnesses **nonrandom** change." Whoa! Even his evolutionist colleagues do not agree with him on this important point. Henry Gee (chief science writer at *Nature*) wrote: "[W]e also have good reason to suspect that to use natural selection to explain long-term trends in the fossil record may not be a valid exercise, because **natural selection is a random, undirected process**, unlikely to work in the same direction for long" (1999, p. 127, emp. added). Creationist Bill Hoesch stated regarding Rennie's claim:

To claim that natural selection is governed by something other than chance is to suggest it is somehow a **directed** process. What shadowy entity would he propose? "Selective forces" are ultimately subject to either chance or intelligence. Rennie can't have it both ways (2002, emp. in orig.).

No, he cannot. The raw material on which evolution allegedly works just happens to be **random** genetic errors (i.e., mutations). As Sarfati noted: "If evolution from goo to you were true, we should expect to find **countless** information-adding mutations. But we have not even found one" (2002, emp. in orig.). Natural selection is not some kind of "conscious" mechanism that "knows" what it is doing.

Furthermore, let's examine Rennie's idea whereby a computer is instructed to randomly select letters, and then eventually sequences the phrase: "Tobeornottobe." By Mr. Rennie's own admission, this computer simulation required an intelligent programmer (Richard Hardison) who first told the computer how to recognize "correctly placed" letters. In other words, the program placed letters into thirteen blank spaces at random. That sounds fair enough. But the computer was pre-programmed to select a letter when it moved into the "correct" (read that as pre-programmed) position. In other words, it "knew" that the first letter was "T," long be-

fore "Tobeornottobe" ever occurred. But wait! Evolution does not have the benefit of such intelligent programming—unless Mr. Rennie is ready to accept the fact that an intelligent Designer played a significant role in creation. And, other factors play a part in the "success" of these computer programs. In addressing this matter, Sarfati wrote:

These computer programs have been widely popularized by the atheist Richard Dawkins, but are a lot of bluff. Such simulations as Dawkins, and now Rennie, propose as "simulations" of evolution work towards a known goal, so are far from a parallel to real evolution, which has no foresight, hence a "Blind Watchmaker." The simulations also use "organisms" with high reproductive rates (producing many offspring), high mutation rates, a large probability of a beneficial mutation, and a selection coefficient of 1 (perfect selection) instead of 0.01 (or less) which parallels real life more accurately. The "organisms" have tiny "genomes" with minute information content, so are less prone to error catastrophe, and they are not affected by the chemical and thermodynamic constraints of a real organism.

Also, when it comes to the origin of **first** life, natural selection cannot be invoked, because this requires a self-reproducing entity. Therefore chance **alone** must produce the precise sequences needed, so these simulations do not apply. And a further problem with the alleged chemical soup is reversibility, intensifying the difficulty of obtaining the right sequence by chance (2002, emp. in orig.).

In discussing the same type of "monkey analogy" that Mr. Rennie employed, Hoyle and Wickramasinghe commented:

No matter how large the environment one considers, life cannot have had a random beginning. Troops of monkeys thundering away at random on typewriters could not produce the works of Shakespeare, for the practical reason that the whole observable universe is not large enough to contain the necessary monkey hordes, the necessary typewriters, and certainly not the waste paper baskets required for the deposition of wrong attempts. The same is true for living material (1981, p. 148).

Creationist Duane Gish posed the following question along the same lines: "What would be the probability of one unique sequence of 100 amino acids, composed of 20 different amino acids, arising by chance in five billion years?" He, too, then employed a "monkey analogy" (the same type of analogy to which Mr. Rennie referred).

A monkey typing 100 letters every second for five billion years would not have the remotest chance of typing a particular sentence of 100 letters even once without spelling errors. In fact, if one billion ( $10^9$ ) planets the size of the earth were covered eyeball-to-eyeball and elbow-to-elbow with monkeys, and each monkey was seated at a typewriter (requiring about 10 square feet for each monkey, of the approximately  $10^{16}$  square feet available on each of the  $10^9$  planets), and each monkey typed a string of 100 letters every second for five billion years (about  $10^{17}$  seconds), the chances are overwhelming that not one of these monkeys would have typed the sentence correctly! Only  $10^{41}$  tries could be made by all these monkeys in that five billion years. There would not be the slightest chance that a single one of the  $10^{24}$  monkeys (a trillion trillion monkeys) would have typed a preselected sentence of 100 letters (such as “The subject of this *Impact* article is the naturalistic origin of life on the earth under assumed primordial conditions”) without a spelling error, even once.

Considering an enzyme, then, of 100 amino acids, there would be no possibility whatever that a single molecule could ever have arisen by pure chance on the earth in five billion years (1976, 37:3, parenthetical items in orig.).

And that is exactly our point.

## CONCLUSION

Evolutionist Donald Goldsmith once offered the following comments on science:

People who simply demand results may not consider the important distinction between scientists’ perceptions and pseudoscientists’ procedures, but scientists do.... Individuals make the theories; the social structure of science does the testing. If you don’t accept this principle, you don’t belong to the scientific community. This does not mean that your ideas must be wrong, only that you (and they) won’t be taken seriously. No one guarantees that your ideas will always receive serious consideration in any case, but there is no hope if you don’t “think like a scientist”—accept the proposition that your ideas may or may not be right, and look for ways to prove the former and reject the latter (1985, p. 157, parenthetical item in orig.).

Notice the phrases that “the social structure of science does the testing” and that “no one guarantees that your ideas will always receive serious consideration” if you don’t “think like a scientist.” In today’s climate, the

“social structure of science” is based in its entirety on the concept of evolution. Read that last phrase, therefore, as—“if you don’t think like an evolutionist!” Doubt that?

In the “letter from the editors” in the July 2002 issue of *Scientific American* (under the heading of “SA Perspectives”), the following statements can be found:

Ideas deserve a fair hearing, but fairness shouldn’t be an excuse for letting rejected, inadequate ideas persist. Intelligent design and other variants of creationism lack credible support and don’t mesh with the naturalistic fabric of all other science. They don’t deserve to be taught as legitimate scientific alternatives to evolution any more than flat-earth cosmology does (287[1]:10).

The editor in chief, John Rennie, then concluded his article by stating that “creationism, by any name, adds nothing of intellectual value to the effort” (p. 85).

Apparently it is **acceptable** for evolutionists to spout “rejected, inadequate ideas”—like *Archaeopteryx* still being considered as a “missing link” between reptiles and birds, or the “fact” that genetic mutations allegedly possess the power to pass on new information that can cause evolution at the level of the genus, family, class, order, phylum, etc. But it is **not acceptable** for creationists to point out that exactly the opposite is true scientifically. Nor, apparently, is it acceptable for creationists to employ what the “man on the street” recognizes as common sense—that from the microcosm to the macrocosm, the world around us is filled with evidence of design, which can only mean that there must have been a Designer.

Mr. Rennie and his colleagues would do well to investigate more closely the **rejected inadequacies** of evolutionary theory before spouting their venom against those of us who already have carried out such an investigation. They can attempt to belittle creationism by tying it with “flat-earth” cosmology, and they can claim with all their professional might that creationism holds “nothing of intellectual value,” but that will not change the evidence—and it will not make us go away.

Make no mistake about it. **We will** continue to stand in defense of that evidence! In fact, seeing the paltriness of the alleged evidence for evolution only causes us to be **more** determined to facilitate the ultimate collapse of evolutionary theory. And, if we may kindly say so, if the type of arguments that Mr. Rennie employed in his *Scientific American* “exposé” are the best the evolutionary community can offer, that collapse surely cannot be too far in the distant future. Evolutionists need to know: we will not go quietly into the night. And when the dust settles, it will not be evolution that is triumphant, but truth—the truth of creationism.

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