Adventist Creationism: Facing the Nonpeaceable Kingdom

What are we to think when "God's second book" sometimes reads like a Stephen King horror story?

by James L. Hayward

SEVENTH-DAY ADVENTISTS EXHIBIT KEEN INTEREST in the history of the earth. This interest is inspired not so much by curiosity as by concern that scientific claims about earth history seem to undercut church doctrine. A 6,000-year history seems biblical and finite—only 80 human life expectancies back to Eve. By contrast, 4.6 billion years, the usual age given for the earth, seems infinite—65 million life expectancies. With Creation buried in deep time, the relevance of Sabbath as its memorial seems lost; without a recent beginning, prospects for a soon-coming end seem remote.

To avoid these consequences, many Seventh-day Adventists defend a short-term chronology for earth history, believing that the Genesis flood formed significant portions of the earth's crust. It was in this tradition that Ellen White provided her graphic descriptions of the Flood and its aftermath in *Spiritual Gifts* (1864) and *Patriarchs and Prophets* (1890).

Following her lead, George McCready Price sought to create the "science" of Flood geology in *Illogical Geology* (1906) and subsequent articles and books. Adventist biologists, chemists, and physicists retrained for the new discipline. In 1958 the Geoscience Research Institute was founded in hopes that it could reinterpret the geologic record in diluvial

Fig 1. The nonpeaceable kingdom pictured in G. B. Andreini's *L'Adamo, sacra rapresentatione*, 1617. Reproduced from John Prest, *The Garden of Eden* (New Haven, Connecticut: Yale University Press, 1981), p. 17. Used by permission.

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terms. Most recently, the church invested in startup costs for a short-lived geology program at Loma Linda University. If the geological time knot could be untied, it seemed, threats to the doctrinal pillars could be thwarted.[1]

Here I raise three such problems for constructive consideration: first, the moral indifference of nature; second, evolutionary change; and third, death and reproduction. I conclude with a brief discussion of several tentative resolutions to these problems within the context of Christian faith.

The Moral Indifference of Nature

Ichneumons constitute the largest insect family, one with more species than all fish, amphibians, reptiles, birds, and mammals combined. Measuring from one-eighth of an inch to more than 1 1/2 inches long, these wasps exhibit black, brown, or yellow coloration. The most striking feature of ichneumons, however, is the feeding behavior of the young. The female ichneumon, after mating, locates a host—often a caterpillar or aphid—for her young. After stinging her captive, she deposits fertilized eggs on or within its body. These soon hatch into voracious grubs. The grubs feast first on the paralyzed host's nonvital fat bodies and digestive organs. Only after finishing off these large, nonvital structures do they devour the life-supporting nervous and circulatory systems. The young ichneumons finally emerge from a hollow corpse—having dined on living, quivering flesh to almost the last bite.[2]

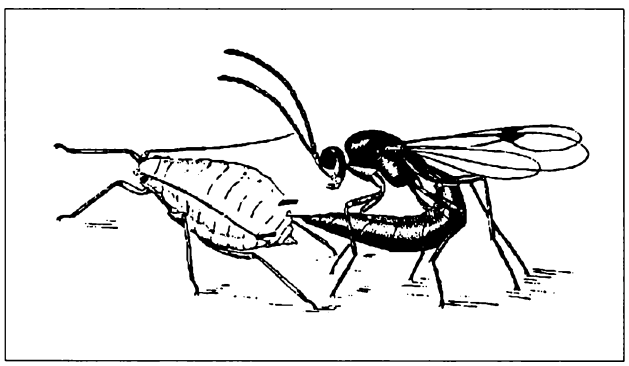

Fig. 2. A female ichneumon wasp deposits an egg inside the body of a paralyzed aphid. Once it emerges from the egg, the larval wasp will eat the aphid alive from the inside. (U.S. Department of Agriculture)

According to early creationists, God designed ichneumons as object lessons for the human species. Thus, Reverend William Kirby, rector of Barham and an early 19th-century entomologist, viewed female ichneumons as exemplars of motherly love. "A very large proportion of them are doomed to die before their young come into existence," wrote Kirby. "But in these the passion is not extinguished. . . . When you witness the solicitude with which they provide for the security and sustenance of their future young, you can scarcely deny to them love for a progeny they are never destined to behold." Elsewhere Kirby praised the ichneumons for keeping under control "those . . . that would otherwise destroy us." For example, he mentioned the little wheat-eating fly that "is rendered harmless, by the goodness of Providence, by not less than three [species] of these little benefactors of our race."[3]

Despite Kirby's apologies, and many similar to his, it is impossible for the modern Christian biologist to overlook numerous creatures that behave with what seems like wanton cruelty, some even more ruthless than ichneumons. Indeed, wherever one looks, nature seems to exhibit benign indifference to suffering, greed, and deceit.

During a recent visit to the Scottish Isle of Foula, biologist Robert Furness was puzzled to find living tern chicks with amputated legs and wings, and corpses of decapitated chicks scattered over the nesting colony. He knew of no local predator capable of such mutilation, but observation soon revealed the culprits—domestic sheep. One animal was seen to "pick up a tern chick in its mouth and shake it, biting through the spine until the severed body fell to the ground. The sheep then ate the head." Three times Furness saw sheep "force a tern

chick down on its back, bite off one or both of its legs, eat them, and then continue grazing without further attention to the chick. . . . The tern chicks made little or no attempt to get away from the sheep."[4]

The queen of one species of ant from France intimidates workers of another species and repeatedly tries to enter their nest. She eventually succeeds, locates the resident queen, assassinates her, then assumes control of the work force for her own wishes.

By contrast, the queen of a German species uses a more subtle tactic. She calms the host workers by gently stroking them with her antennae and her mouthparts. Then, once inside, she grabs their queen from behind, crushes her neck with saber-shaped mandibles, and takes control of the colony.

Similarly, slave-making ants of numerous species invade neighboring colonies, killing both the workers and the queen. However, the young are captured and carried back to the invaders' nest. The captives are raised to adulthood and are put to work foraging, nest-building, and caring for their captors' young. Typically, slave-makers possess large mandibles for puncturing the heads of their opponents during raids.[5]

Insects of the species *Xlyocaris maculipennis* reach what seems to be the pinnacle of natural obnoxiousness. Using a daggerlike penis, males of this species stab the abdomens of *both* males and females and deposit their sperm. In females, the sperm travels to receptacles where it is stored until ovulation. In recipient males, sperm travels to the reproductive organs and is inadvertently used by these males to inseminate females with which *they* mate. Males thus father offspring directly when they mate with females and indirectly when they mate with other males. Homosexual matings sometimes occur while the violated males are themselves copulating with females.[6]

One would hope that the lower levels of fossil record containing the remains of earlier living creatures would provide evidence of a more benign creation. Unfortunately, this is not the case. Sharks and other predatory fish were apparently abundant when these early rocks were formed. Labyrinthodonts—amphibians with teeth like sharks—are found at this same low level along with many other predatory animals. Structures for offense and defense seem to have been part of the animal world for a long time.[7]

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Adventists have generally underplayed the seamy side of nature, perhaps out of ignorance. Church publications focus on features of the natural world that provide evidence for Creation or provide some object lesson—nature nuggets and moral illustrations for Sabbath school programs and bedtime stories.

This approach, while entertaining, creates a cardboard caricature of nature, one that sets people up for disillusionment when confronted with the facts. Moreover, when Adventists do address the issue of the moral neutrality of nature, their explanations are sometimes inconsistent.

Harold Coffin, for example, ascribed responsibility for many abhorrent natural fea-

tures directly to Satan. "Should we accuse God of creating the fangs and poison glands of the reptiles, the stings of the wasps and bees, the musk gland of the skunk with its accompanying odor, the large head and jaws of soldier ants, or the thorns on the rose?" He noted that "Satan has done what he can to corrupt God's Creation. Jesus said to the tares, 'An enemy hath done this,' and He identified that enemy as Satan."[8]

By contrast, Harold W. Clark seemed less willing to ascribe the production of abhorrent features to the direct workings of the devil. He suggested that "part of the corruption in animal life was due to intermingling of the original kinds," and that only the created kinds were saved in the ark at the Flood. Today the bones of these so-called "confused species" are dug up as fossils, testimonies to the witness of Scripture.[9] Elsewhere, however, Clark was comfortable attributing many adaptive characteristics of organisms to evolutionary change through natural selection.[10]

Clearly, no consensus has emerged among Adventists on the issue of the moral indifference of nature; indeed, this topic has received little attention. This is due partly to the difficulty of determining what is good or bad or "perfect" in a created sense. Many features that humans view with abhorrence apparently do not evoke the same response among other organisms.

Fig. 3. The mythical Scythian lamb linked plant and animal kingdoms in the Great Chain of Being. Originally published in C. Duret's *Histoire admirable des plantes*, 1605. Reproduced from John Prest, *The Garden of Eden* (New Haven, Connecticut: Yale University Press, 1981), p. 51. Used by permission.

Faced with the reality of nonmoral nature, most Adventist creationists agree that significant changes have occurred since the time that "God saw every thing that he had made, and, behold, it was very good." But how extensive have these changes been, and when and how did they come about?

Evolutionary Change

"There is in this Universe a Stair," wrote Sir Thomas Browne, "rising not disorderly, or in confusion, but with a comely method and proportion." To Browne and his 17th-century contemporaries, all earthly and heavenly things were links in the Great Chain of Being spoken into existence by the Creator.

This Greek-inspired chain, or Ladder of Perfection, rose from the minerals, through plants, animals, humans, cherubim and seraphim, to God himself. The "links" of the chain were of equal length. The mythical Scythian lamb—part plant, part sheep—linked vegetable and animal worlds; the dual-natured human, *Homo duplex*, bridged a temporal earth with an eternal heaven. Everything found its preordained place in the divine scheme.[11]

Swedish naturalist Carolus Linnaeus set out to classify this structured world. "God creates, Linnaeus arranges," he opined, immodestly referring to himself in the third person. Linnaeus believed that he saw nature as it had come from the hands of the Creator—complete, orderly, purposeful, manageable, knowable.[12]

Today an army of taxonomists scours the planet to catalog life. In contrast to Linnaeus, the new classifiers recognize the impossibility of their task—and their estimates of species

numbers keep rising: 5 million is conservative; 30 to 50 million seems within reason.

When the late J. B. S. Haldane was asked what his study of biology had taught him about the mind of God, he quipped, "Madam, only that he had an inordinate fondness for beetles!" Nearly a half-million species have been described.[13] The question emerges: Why would God create so many similar species?

As I have already noted, most Adventist scientists concede that significant biological change has occurred since Creation, and that this change, in part, is responsible for much of the diversity. But they are quick to add that change never occurs from one "created kind" to another. For example, Harold Coffin wrote:

> Living organisms are not fixed or static. They change either naturally or through man's manipulations. New varieties, races, subspecies and even species have [been formed] and are forming. In a sense evolution is taking place, but it is not the kind of change evolutionists need. . . . It is small change, microevolution, that we see. Variations within the basic "created kinds" are a fact of life and part of God's scheme for nature. But they do not pass the barriers God established at Creation.[14]

Statements like Coffin's raise several issues about the extent and nature of evolutionary change. First, there is an apparent dispute over the terminology used to describe change. To most evolutionists, *microevolution* refers to "slight evolutionary changes within species,"[15] changes often driven by natural selection. Moths on darkening backgrounds, for example, become darker and less visible to predators; house sparrows in northern climes become bigger and thus better able to retain their body heat.

Microevolutionary mechanisms, the province of population geneticists, are quite well understood and accepted by most creationists. *Macroevolution*, by contrast, refers to "the evolution of great phenotypic changes, usually great enough to allocate the changed lineage and its descendants to a distinct genus or higher taxon."[16] Herbivores, for example, develop the musculature, dentition, and digestive tracts to become carnivores; desert-dwelling plants reduce the sizes of their leaves or eliminate them altogether and thus conserve water.

While creationists eschew macroevolutionary terminology, they accept selected evidence for macroevolutionary change. For example, Frank Lewis Marsh pointed out that vinegar flies, along with many other organisms, have undergone species transformation. How, then, he asked, "can we escape the fact that the development of a new biological species does not necessarily constitute macroevolution, that is, organic evolution?" Marsh solved this problem through redefinition. Simply call such change microevolution, he suggested, for "the term macroevolution is poorly and inaccurately defined."[17]

Similarly, Coffin viewed the remarkable specializations of egg-swallowing snakes, ant-eating mammals, coral-crunching fish, and blood-drinking bats within the context of microevolution, though secular biologists would consider these and similar examples the result of macroevolutionary adaptations.[18]

Second, the meaning of the term "created kind" (also called "basic kind," "original kind," et cetera) is raised. Creationists assert that while extensive change has occurred, it has never occurred from one created kind to another. But what is created kind? According to Coffin,

> The original created kind may be represented on the species level by mankind; it may be presented on the family level by the Galapagos finches; it may have been on the order level with some insects; and it may have been on the phylum level with the Acanthocephala, which are entirely parasitic.[19]

In this broadened view, "created kind" loses operational significance—it becomes anything we want it to be.

Third, we face the issue of what is simple and what is complex surfaces. Creationists

sometimes deny that change results in the production of more complicated structures from simpler structures. However, they consider many structural, physiological, and behavioral features of organisms to be the result of post-Creation change. Often these features are very complex, and it is difficult to visualize functional created structures from which they could have been derived. Consider, for example, the proboscis of the Acanthocephalon worms, all 500 species of which are parasitic. This structure is covered with curved spines for attachment to the digestive tracts of their hosts. The proboscis can be retracted by specialized muscles into a protected sheath when not in use.[20] Is it reasonable to refer to this complicated organ as a "degenerate structure"?

Fourth, many organisms exhibit vestigial structures that have no apparent function. Vestigial structures seem to be the anatomical

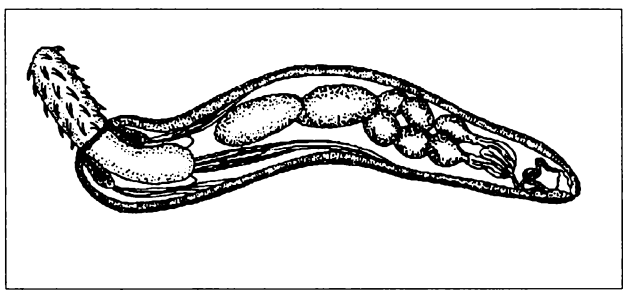

Fig. 4. An acanthocephalon worm. The spiny proboscis is used by the worm to attach to the digestive tract of its host. The proboscis can be pulled into a protective sheath when it is not in use.

remnants of once-functional organs. For example, whales have tiny pelvic and femur bones "floating" within the muscles of their hindquarters. Boa constrictors have these same bones. Today, whales and boas have no need for pelvises or femora, for they are without hind limbs.[21]

Likewise, many salamanders have four functional legs; others have no legs; still others have only front legs by which they drag themselves along; and still others have four legs, though only the front two are functional—the remaining vestigial legs drag helplessly along behind.[22] It is doubtful that God created organisms with useless structures. Significant historical change seems to be implied.

Fifth, attempts by creationists to explain moderate change within the context of a short-term chronology are problematic, considering the apparent diversity of life in Egypt, Mesopotamia, and other areas of the Middle East three or four thousand years ago. A visit to any collection of artifacts from this period shows that many species thriving then are still alive today. Some, like the lion, leopard, and adder, exhibit predatory characteristics that creationists cannot picture in a newly created world.

The eggs of *Schistosoma haematobium*, parasitic flatworms that continue to plague Africans today, are preserved in 3,200-year-old Egyptian mummies. At least 50 references to "bloody urine," a sign of the presence of this parasite, have been found in Egyptian papyri.[23] When and how did these organisms appear?

Sixth, patterns exhibited by the fossil record are difficult to account for from a traditional creationist perspective. While there is not space to adequately develop this topic here, I will note several generalities. For example, as one goes deeper in the geologic column, the proportion of extinct types of organisms increases gradually, not suddenly as one might expect with a worldwide flood. Many modern groups of organisms are not represented in the lower levels of the column, including flowering plants, mammals, and birds. Others, unlike anything we see on earth today, were abundant: for example, trilobites, armored fishes, dinosaurs, and therapsids.

Many of the complex organisms in lower levels of the geologic column were, by all appearances, fearsome predators. I am unaware of any reasonable explanation that accounts for these data from a traditional creationist perspective.

Finally, the present-day distribution of organisms broadly reflects the spatial distribution of their putative fossil ancestors, a fact that complicates any reasonable model of earth history, especially one proposing that modern-

day animals radiated out from Noah's ark several thousand years ago. Most fossil marsupials, for instance, are found in Australia and South America, where today's marsupials are found. Edentates, including anteaters, armadillos, and sloths, are restricted to the New World, both as living and fossil forms. Many organisms are modified to function in their local ecosystems and could survive nowhere else.

George McCready Price suggested that after the Flood, animals migrated back to their pre-Flood localities by instinct.[24] Careful examination of the intricate structure of ecosystems and the complexity of plant and animal adaptations and distributions reveals the inadequacy of explanations such as this.

The incredible complexity of life and its temporal and spatial distribution are only beginning to dawn on us. If we want to be taken seriously, we must take this complexity into account as we construct our models of the past.

Without reproduction, death would bring life to extinction; without death, reproduction would spawn overpopulation. . . . For the creationist, no problem is so vexing, yet so central, as this one.

Death and Reproduction

Small flies called fungus-eating gall midges reproduce in two ways. Females either mate with males and produce offspring in the usual manner, or, if conditions permit, females reproduce parthenogenetically as virgins. Young from unfertilized eggs hatch *inside* the mother's body. Because the only food available to these cloistered larvae is their mother, they gorge themselves on her soft, inner tissues. Eventually they emerge from her empty shell, having eaten her alive. But two days hence the eaters become the eaten as their own young repeat the process.[25]

Mites of the species *Acarophenax triboii* exhibit similar but even more bizarre reproductive strategy. Fifteen eggs develop within the mother's body. Fourteen of these hatch into females, one into a male. As in the case of the gall midges, the larval mites feed themselves into adulthood on the mother's tissues. The single male then copulates with his sisters. The impregnated sisters now give birth to themselves by chewing their way out of their mother's hollow corpse. The unborn incestuous brother, having carried out his only responsibility, remains behind to die—death before birth.[26]

Gall midges and mites juxtapose two mutually dependent processes—death and reproduction. Without reproduction, death would bring life to extinction; without death, reproduction would spawn overpopulation. Reproduction assures the inevitability of death—one is impossible without the other.

For the creationist, no problem is so vexing, yet so central, as this one. Virtually everything an organism does is related to reproduction. Plants form flowers that produce seeds. Roosters make feathers that attract hens. Women develop bodies that accommodate childbirth. Take the reproductive functions from organisms and life ceases to exist. Indeed, the repeated command of Genesis 1 is to "Be fruitful, and multiply."

But death, too, is a creative process. Without death, plants would lack nutrients and animals would be without food. Indeed, ani-

mal digestive tracts and the batteries of digestive enzymes they produce are for the absorption of the dead by the living. A whole kingdom of organisms—Kingdom Fungi with some 100,000 species—depends primarily on dead material for its existence.

Moreover, without death there could be no natural selection; without natural selection there could be no adaptation to environmental change; and without adaptation to environmental change, life would cease to be. Death is even more important to embryonic development—the death of cells in paddlelike embryonic hands frees human fingers for their amazing dexterity. Ironically, death shapes life.

It is impossible, then, to think of life as we know it without reproduction *and* death. Nineteenth-century Presbyterian writer James Miller Killen recognized this:

> Marriage in this world is the ordinance God hath appointed to repair the ravages of death: but in heaven there will be no death, so there is no such compensatory institution as marriage . . . to counterbalance the effects of dissolution.

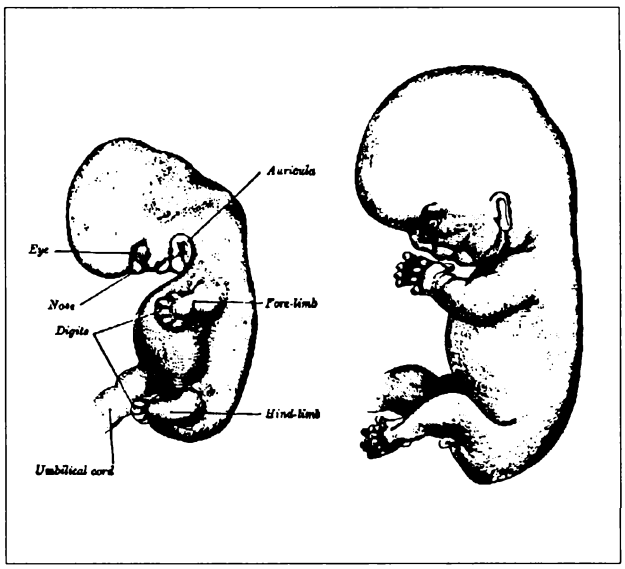

Fig. 5. Early human embryos have paddlelike hands and feet. By the eighth or ninth week of development, however, the fingers and toes are freed for independent movement as a result of the cell death between these digits.

Another Presbyterian, John Kerr, was even more direct:

> As there shall be no more death [in heaven], neither will marriage, instituted to supply the waste of mortality, be any longer necessary, and of course have no place.[27]

To most Adventist creationists, however, reproduction began at Creation; death began later with the entrance of sin. We have largely overlooked this apparent inconsistency.

Conclusion

It is important to recognize that the issues above will never be fully resolved. But given our immersion in the natural world and our commitment to faith, many of us find it necessary to achieve some measure of resolution. How can this be done?

First, questions about the origin and nature of life must be placed within their appropriate context. Despite major differences of opinion over the history of life and the interpretation of sacred writings pertaining to that history, life is undeniably abundant and diverse.

Moreover, this abundance and diversity is crucial for human existence. It would be ironic if we were to participate in the destruction of this abundance and diversity while arguing over its nature and origin. Clearly, then, our questions about life's origin and nature, while interesting, must always remain secondary to ethical questions about how to serve as proper stewards of the planet.

Second, developing an understanding of molecular genetics and developmental biology provides fascinating glimpses into mechanisms of biological change. For example, studies in molecular biology reveal that levels of genetic variation in nature are much higher than we once thought. This is an important discovery, for genetic variation provides the raw material for natural selection, and natural selection adapts organisms to the environment. We also know that genetic systems have remarkable capacities to

undergo recombination, either spontaneously or through action of viral and bacterial vectors. This recombination sometimes involves the transfer of genes from one type of organism to another, resulting in modifications to the recipient.

But perhaps the most interesting discovery is that minor genetic switches during embry-

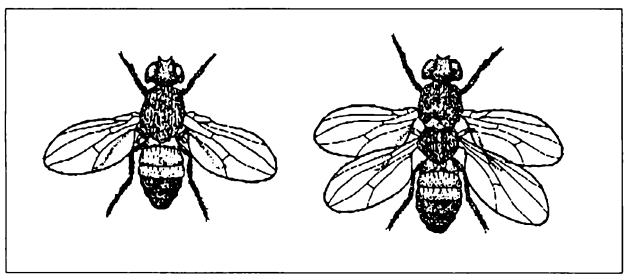

Fig. 6. A normal fruit fly develops one pair of wings (left). However, a simple mutation can alter embryonic development in the fly so that it forms two pairs of wings instead of one (right).

onic development can translate into major alterations in adult form—plants produce flowers with fused petals instead of free petals; insects develop extra pairs of wings or legs; and salamanders that normally have only gills develop lungs. In short, we are only beginning to appreciate how the macroevolutionary processes alluded to by Harold Coffin occur.

Finally, as Christians interested in natural history, we must resist the temptation to assert control over the past. Just as we must relinquish control of our lives to the Creator-Redeemer, we must also relinquish control of the past to the divine Person. Our assemblages of data, our interpretations, our conjectures—all of which continually change—have no impact on what really happened. God is over all, including the history of life. To the scientist who is a Christian, it is a great relief to make this discovery.

One thing seems clear. Despite the questions it poses, life is too wonderful to be accounted for on purely naturalistic grounds. Life is a mystery, a divine mystery ultimately beyond the purview of rational analysis.

It was in this context that the Apostle John penned the most profound confession of creationist faith ever recorded:

> In the beginning was the Word, and the Word was with God, and the Word was God. He was with God in the beginning. Through him all things were made; without him nothing was made that has been made. In him was life, and that life was the light of men. The light shines in the darkness, but the darkness has not understood it (John 1:1-5, NIV).

Notes and References

1. Ronald L. Numbers, "'Sciences of Satanic Origin': Adventist Attitudes Toward Evolutionary Biology and Geology," *Spectrum* (January 1979), pp. 17-30.

2. Stephen J. Gould, *Hen's Teeth and Horses' Toes: Further Reflections in Natural History* (New York: W. W. Norton and Company, 1983), p. 37.

3. William Kirby, *The Bridgewater Treatises on the Power, Wisdom, and Goodness of God as Manifested in the Creation. Treatise VII: On the History, Habits and Instincts of Animals*, Volume 2 (London: William Pickering, 1835), pp. 62, 63, 333; Stephen Jay Gould, *Hen's Teeth and Horses' Toes*, pp. 39, 40.

4. Robert W. Furness, "Not by Grass Alone," *Natural History* (December 1989), pp. 8-12.

5. Edward O. Wilson, *Sociobiology: The New Synthesis* (Cambridge, MA: The Belknap Press of Harvard University Press, 1975), pp. 363-371.

6. David Quammen, *The Flight of the Iguana* (New York: Delacorte Press, 1988), pp. 25-31.

7. Carl O. Dunbar and Karl M. Waage, *Historical Geology* (New York: John Wiley and Sons, Inc., 1969), pp. 248-250.

8. Harold G. Coffin, *Origin by Design* (Washington: Review and Herald Publishing Association, 1983), p. 413.

9. Harold W. Clark, *Genes and Genesis* (Mountain View, CA: Pacific Press Publishing Association, 1940), pp. 99, 100.

10. Ibid., pp. 42-59.

11. Loren Eisely, *Darwin's Century: Evolution and the Men Who Discovered It* (New York: Doubleday and Company, 1958), p. 7; John Prest, *The Garden of Eden: The Botanic Garden and the Re-Creation of Paradise* (New Haven, CT: Yale University Press, 1981), pp. 51, 52.

12. Neil A. Campbell, *Biology* (Rosewood City, CA: The Benjamin/Cummings Publishing Company, Inc., 1990), p. 425.

13. Helena Curtis and N. Sue Barnes, *Biology* (New York: Worth Publishers, Inc., 1989), p. 574.

14. Coffin, *Origin by Design*, pp. 394, 395.

15. Douglas J. Futuyma, *Evolutionary Biology* (Sunderland, MA: Sinauer Associates, Inc., 1986), p. 553.

16. Ibid.

17. Frank L. Marsh, *Variation and Fixity in Nature* (Mountain View: Pacific Press Publishing Association, 1976), pp. 40, 41.

18. Coffin, *Origin by Design*, p. 416.

19. Harold G. Coffin, *Creation: Accident or Design?* (Washington: Review and Herald Publishing Association, 1969), pp. 416, 417.

20. Robert D. Barnes, *Invertebrate Zoology* (Philadelphia: Saunders College, 1980), pp. 309-311.

21. Salvador E. Luria, Stephen J. Gould, and Sam Singer, *A View of Life* (Menlo Park, CA: Benjamin/Cummings Publishing Company, Inc., 1981), p. 580.

22. David Attenborough, *Life on Earth: A Natural History* (Boston: Little, Brown, and Company, 1979), p. 139.

23. Gerald D. Schmidt and Larry S. Roberts, *Foundations of Parasitology*, (St. Louis: Times Mirror, Mosby College Publishing, 1989), p. 265.

24. George McCready Price, *Outlines of Modern Science and Modern Christianity* (Oakland, CA: Pacific Press Publishing Association, 1902), pp. 188-191.

25. Stephen J. Gould, *Ever Since Darwin: Reflections in Natural History* (New York: W. W. Norton and Company, 1977), p. 92.

26. Stephen J. Gould, *The Panda's Thumb: More Reflections in Natural History* (New York: W. W. Norton and Company, 1980), pp. 74, 75.

27. Cited by Colleen McDannell and Bernhard Lang, *Heaven: A History* (New Haven: Yale University Press, 1988), p. 260.

Appendix: The Evolution of Adventist "Evolutionism"

Seventh-day Adventist scientists believe in the divine creation of life as witnessed by Scripture. Because of this belief, many people assume that Adventist scientists reject the concept of evolutionary change, or think that if such change occurred it was insignificant. This is a misconception. As the following published statements demonstrate, Seventh-day Adventists have always accepted the occurrence of evolution to some degree or another. Adventist writers have usually avoided use of the term *evolution*, favoring instead words like *variation, adaptation, speciation*, or simply *change*. However, the term *evolution*, as used by contemporary secular biologists, applies to the processes of change acknowledged by all these SDA writers. Significantly, the degree of evolution implied by several of these statements fits the category of *macroevolutionary* change, though the authors do not label it as such.

Anonymous writer in *The Advent Review and Sabbath Herald* — 1860

"As to the number of beasts [in the ark], it is not necessary to suppose that each species now known was represented; for naturalists are generally of the opinion that their number has greatly increased from the influence of climate, food, intermixture of races, et cetera."[1]

Ellen G. White — 1864

"Since the flood there has been amalgamation of man and beast, as may be seen in the almost endless varieties of species of animals, and in certain races of men."[2]

George McCready Price — 1911

"There are, indeed, many proofs that various types now classed as distinct species must have had a common origin. For instance, . . . we know that the extremely diverse types of dogs, scattered in all climates, are not only perfectly cross-fertile among themselves, but breed freely with wolves and others of the canidae, so that this whole family may possibly represent one original stock. Hence, a broad view of species would lead us to trace a real genetic relationship between many quite diverse types of animals, just as we are assured that the Negro, white, and yellow races of mankind are all descended from a common stock."[3]

Harold W. Clark — 1940

"Largely, however, it must be recognized that the [diverse forms of organisms of particular major groups] are adaptive, and must have come from ancestors which were not similarly adapted. No creationist can accept the idea of rock slides, deserts, high altitude winter conditions, and the like, in the original creation. A considerable amount of change from the original condition of the earth must be conceded in order to explain these findings in nature.

"In a given population where variations are continuously arising, the ones best adapted to meet the struggle for existence would survive whereas the ones less fortunate would succumb. The survival of the fittest is a real phenomenon every field naturalist must reckon with.

"The theory of 'divergent evolution' . . . is apparently a valid one within actually observable limits. Like any theory, it loses its value when an attempt is made to apply it universally beyond the range of experience and observation.

"A thoughtful consideration of the problems of distribution of plants and animals emphasizes the reality of the struggle for existence, the survival of the fittest, and natural selection. As a working basis for understanding such problems, these principles constitute fundamental biological background of value to every practical ecologist.

"The creationist viewpoint is one of limitation of the amount of change rather than the disallowance of any change whatsoever."[4]

George McCready Price — 1941

"Believers in creation . . . admit that considerable changes are possible, such, for instance, as the possibility that all the bears of the world may have come from a common ancestor, that all the cats may be of common descent, or that all the dogs and wolves may have had a common origin. Creationists do not claim to know the limits of such variations, but they seriously question whether any distinct transformation of one genuine species [Price here means "created kind," not the "biological species" that scientists speak of] into another has ever been possible."[5]

Frank Lewis Marsh — 1947

"The special creationist *does* believe in 'fixity,' but it is most decidedly not 'fixity of "species." ' Many species (modern) are being built up and have been built right under our eyes today. The creationist welcomes this knowledge with a mind just as joyously open to the fact as does the evolutionist. Anyone with his eyes open to facts regarding the origin and development of any one of our modern, economically valuable plants or animals must become very conscious of the fact that there is rarely 'fixity' of modern form and coloration."

"If there ever was a group of scientists sold on the idea of descent with change (within limits) it is special creationists."[6]

Harold G. Coffin — 1969

"As we look at the examples of speciation out of the past, there are also questions that a creationist cannot answer and that indicate a level of speciation (at least in some instances) beyond what most of us have previously thought."[7]

***The Seventh-day Adventist Bible Commentary* — 1978**

"New species of plants and animals are being formed at the present time. The almost endless intergradations within the various kinds of animals and the various kinds of plants in the world, the profound degeneration among some parasites, and the evident adaptations for offense and defense among certain animals lead to the inevitable conclusion that much change has occurred among the living forms on earth. But there is no evidence of major change from one fundamental kind to one another."[8]

Notes

1. G.W.A. "The Skeptic Met," *The Advent Review and Sabbath Herald*, (September 4, 1860).

2. Ellen G. White, *Spiritual Gifts*, vol. 3 (Battle Creek: Review and Herald Publishing Assoc., 1864), p. 75.

3. George McCready Price, *God's Two Books, or Plain Facts About Evolution, Geology, and the Bible* (Washington, D.C.: Review and Herald Publishing Association, 1911), pp. 56, 57.

4. Harold W. Clark, *Genes and Genesis* (Mountain View, CA: Pacific Press Publishing Association, 1940), pp. 42, 50, 56, 58, 59.

5. George McCready Price, *Genesis Vindicated* (Washington: Review and Herald Publishing Association, 1941), p. 173.

6. Frank Lewis Marsh, *Evolution, Creation, and Science*, (Washington: Review and Herald Publishing Association, 1947), pp. 334, 345.

7. Harold G. Coffin, *Creation: Accident or Design?* (Washington: Review and Herald Publishing Association, 1969), pp. 336, 337.

8. Francis D. Nichol, "The Creationist Model of Origins," *The Seventh-day Adventist Bible Commentary* (Washington: Review and Herald Publishing Association, 1978), p. 63.

Gold

h
ard to believe
there is any gold:
from crucible to crucible
I go: all my thoughts
Flow and burn, bubble and
steam until He
Skims again the dross
cools me again,
Less one intention,
inclination.

Ah, I breathe, so it was *that!*
—then feel the furnace
Heating up again. . . .

by Beverly Dolan Rorick

A Dream of Gardens (for Ann)

m
y friend will understand
My dream of gardens—
We hunted flowers together
Long ago—the wild kind
That flourish in dampish
Meadows or close to rock-rough
Walls; daffodils grew there,
Small sleeves of yellow silk
Fluttering over flacons of
White narcissus; white, too,
The fichus of lilies and
Queen Anne's Lace. . . . It
Was a womanly world in
Early spring—the soft eyes
Of violets stared up at us
And we, seated on old
Tombstones or in some ruined
Arbor, stared back, smiled
At pansies' frowns—and
Saw before us a whole
Bouquet of years. . . .
My friend will understand
My dream of gardens.

Beverly Dolan Rorick, a graduate of Atlantic Union College, received an M.A. from Elmira College, New York. She is a freelance writer of poetry and children's stories, living in Concord, New Hampshire.