

With such rather convincing accusations against the churches, *Unholy Smoke* has run its short course. Despite its quasipolemic style, the book provides valuable perspective on the most recent of Christian religious wars.

## How Is Earth History Revealed?

BENTON M. STIDD

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### CREATION — ACCIDENT OR DESIGN?

By Harold G. Coffin (with chapters by Ernest S. Booth, Harold W. Clark, Robert H. Brown, Ariel A. Roth, and Edward E. White)

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Occasionally a book is of sufficient importance and complexity to merit discussion by more than one reviewer. The editors think that this is such a book.

A recent excellent review of Coffin's book in this journal presented an analysis of its contributions through the eyes of a biologist. I wish to give an appraisal from the viewpoint of one in earth history, particularly paleobotany.

Coffin's reliance on and generous use of the published works of Ellen G. White and the Bible as sources of truth allow him to deal frankly with issues in a way that is of particular value to Seventh-day Adventists. His attempt to base his theories on a short chronology in the tradition of most Adventist apologists becomes increasingly difficult in view of new data in fields the author represents. But there is no denying the absolutely fundamental position the short chronology holds in much Adventist thought; hence this topic is of extreme importance among Adventists, and increasingly so. It is this aspect of the volume on which I wish to focus attention.

Fundamental to the defense of a short chronology for the earth is the concept of a perfect world brought into existence in a week's time. The first section of the book is devoted to this topic and the underlying issue — how the Genesis story is to be regarded. "By faith we accept this story as a true and literal record that God has given us" leaves no doubt as to where the author stands. In the author's view, Moses, under the guidance of the Holy Spirit, was protected from any of the scientific misconceptions of his time, so that in addition to setting forth basic theological truths of Creation, the account was intended as a concise and literal scientific statement. This reflects a particular view of inspiration and revelation common in the Adventist church and prevalent throughout the volume. It is admitted that at times use was made of the terminology and cosmological concepts of the time. But it is implied that Moses and the other Bible writers did not concur in these popular misconceptions. This position, however, may be as precarious as the Roman Catholic position on papal infallibility.

When the Bible speaks of the creation of great whales, the author justifiably points out, this translation is too limited. The difficulty of including carnivorous animals in an original perfect creation may be one of the reasons why a better translation is desirable. That the term *sea monster* is an improvement is not obvious to me. Nevertheless, it points up one of the greatest problems facing one who believes that Creation occurred only 6,000 or 7,000 years ago: namely, the incredibly rapid rate of change in organisms necessary to produce carnivores, and the tremendous diversity of life forms extant today.

This problem is admitted at the end of chapter twenty-seven, which paradoxically goes to great lengths to show that only microevolution occurs. The argument boomerangs, however, for it proves too much. The evolutionist is chided on the one hand for believing in macroevolution in the absence of the necessary mechanisms, while on the other hand the creationist, when presented with a similar problem, finds it quite in order to suggest that other processes not now known were formerly active.

Flood geology<sup>1</sup> is discussed in the second chapter and in certain succeeding sections. The idea that the original creation was destroyed by the Noachian Flood of vast proportions and incomparable magnitude seems to be absolutely essential to a short earth chronology. Support for such an event is marshaled by pointing out those places in the geologic record where catastrophic action was responsible for rapid deposition. Such places do exist and are quite skillfully exploited in support of Flood geology. One example is the Carboniferous section in Nova Scotia, where Coffin has turned up some rather interesting observations in support of rapid deposition. However, this site and others in the New England states have long been noted for their unique record of rapid deposition but not transport of upright plant remains. Furthermore, a significant portion of the data on Nova Scotia that fails to fit with a transport model is not considered.

The situation is quite different in the Eastern Interior and Midcontinent basins where coal seams equivalent to those of Nova Scotia are traceable over thousands of square miles. The suggestion that the vegetation composing these coal seams was collected in great mats during the Flood and eventually dropped in place is not in accord with much of the evidence. For example, the small reproductive bodies (pollen and spores) produced by Carboniferous vegetation are also found in these sediments. Their distribution within these rocks, with consistent differences from level to level and from coal seam to coal seam, is precise enough to make stratigraphic correlation possible. This is strong evidence that the coal seams were produced by intact plant communities growing naturally on sites reasonably near the areas of deposition. If these coal seams were deposited one above another (at least fifty in the Illinois basin) in a few months' time by surging flood waters, it is inconceivable that there would be any order to the occurrence of such microscopic objects.

A recent palynological study shows that from Silurian through Devonian time, spores increased in diversity (number of genera) concomitant with the development of two distinct size classes.<sup>2</sup> This is in harmony with the concept of the gradual change of a land flora in the direction of heterospory. Again, for such an ordered sequence of such small objects to have been laid down in a few months' time by flood waters on a worldwide scale is difficult to imagine.

The author makes a major point of the lack of similarity between the herbaceous peats so widespread in cold northern regions today and the woody nature of most coals. He fails to point out in this regard that the climate of coal-forming habitats was most often demonstrably warm and moist. Although less widespread, in warm temperate and subtropical regions, peat deposits with much wood are known.

Finally, an autochthonous peat seam has been discovered which extends under the ocean off the coast of Florida for as far as one and three-quarter miles.<sup>3</sup> Apparently the sea has been slowly transgressing over the land for the past four or five thousand years. Thus a model of sorts does exist in present-day environments for coal seam formation in the past.

Considerable attention is devoted to the question of the nature of the lateral appendages of the organ genus *Stigmaria*. Although this is an interesting morphological problem (the rootlets do have many leaflike characters, including an abscission zone at the base), there is no doubt that these appendages functioned as roots, and their almost universal occurrence in the underclays or sediments beneath the coal seams is not easy to account for on the basis of predominantly transported flood deposits.

The presence of limestone containing distinctive marine fossil assemblages characteristic of the different levels within the Carboniferous in the cyclothem sequences so characteristic of Carboniferous strata implies quiet water in offshore environments where fine sediments could accumulate. Thus the evidence from microfossils and macrofossils, together with sedimentary evidence, demands considerable lengths of time for the formation of Carboniferous strata. This kind of evidence also argues against the ecological zonation theory presented by Harold Clark in chapter sixteen.

It is inconceivable to me that during the initial stages of the Flood there would have been no forms of higher life (for example, Angiosperm seeds, twigs, leaves, etc.) swept into areas of deposition no matter how strongly the antediluvian world might have been zoned. This points out a constant dilemma faced by Flood geologists: the necessity of invoking violent catastrophe on the one hand (which shortens the time necessary for a given geologic structure to form), while on the other hand admitting that there are many examples where an integral part of the same structure calls for slow accumulation or development in quiet water. Sometimes it appears that even Flood geologists tone down the violent scenes recorded by inspired writings, or at least shift them around in time or space.

One of the major problems faced by Flood geologists is where to draw the lines between preflood and postflood deposits. A rough outline is presented in chart form (p. 111) comparing geologic periods with presumed major events of the Flood. This is understandably a difficult task, since these boundaries are not evident in the geologic record.

It will be noted that several of the examples chosen as evidences of the Flood do not fit very well with the chart: for instance, the Miocene San Onofre breccia and the Cambrian Burgess shale. On the chart, Miocene is well up into the Flood-postflood transition section. Of more concern is the fact that, while the two formations in the San Onofre area indicative of rapid deposition are described, the Monterey shale, which does not conform to a catastrophic model but is interbedded with the first two at several levels (see Figure 8.2), is not characterized at all. This shale is composed dominantly of microscopic diatoms that are generally recognized as accumulating

slowly on sea bottoms. (The author suggests on page 61 that such deposits may have accumulated in pre-flood times.)

In the discussion of the delicately preserved Cambrian Burgess shale fauna, the author argues that a catastrophe such as the Flood would be required (pp. 69-70). Evidence on turbidity current deposits and submarine slides make such an argument difficult to defend. Moreover, the fact that the fossil-rich seam is not confined to a single level or living community suggests that the area was recolonized a number of times and that at least several generations of organisms are preserved.

If it were not for many consistent lines of evidence indicating relatively slow development of certain geologic structures — including, among others, organic reefs at many levels in the column and the floral and faunal successions in Tertiary deposits such as are described by Ritland<sup>4</sup> — one might conceivably consider the entire geologic column as Flood deposited. If this could be done, one might (if numerous other lines of evidence are ignored) stay within the time limits that many Flood geologists are willing to accept. The vagueness with which pre-flood and post-flood boundaries are indicated is evidence in itself of the vulnerability of the attempt. Even so, if one accepts the general outline presented in Figure 10.9 (p. 111), there are still tremendous difficulties that prevent fitting all the necessary events within the acceptable time limits.

A good account of radioactive time clocks is given in chapters twenty-five and twenty-six. However, I remain amazed at some of the summary statements designed to allay any fear of abandonment of the biblical time scale. For example:

In accord with the principle that “the book of nature and the written Word shed light upon each other,” an understanding of radioisotope dating can assist one in avoiding unwarranted interpretation of inspired testimony, and a recognition of the insights given through prophetic ministry can assist one in identifying incorrect assumptions underlying the interpretation of radioisotope data. There is need for extensive research by adequately qualified geochemists who recognize the complementary testimony of the book of nature and the written Word. Areas in great need of such investigation are radioisotope dating of volcanic material, intrusive material, and marine deposits [pp. 294, 295].

One with a different point of view might think it entirely valid to modify the last two sentences thus: “There is need for extensive research by adequately qualified theologians who recognize the complementary testimony of the book of nature and the written word. Areas in great need of such investigation are the nature of inspiration, accommodation, theory, and hermeneutics.”

The calibration of radiocarbon dates by means of bristlecone pine tree ring chronology (going back at least 7,000 years) is particularly damaging to traditional short-term time limits and did not receive the full treatment it deserves. The fact that bristlecone dates for the past 2,500 years compare closely with  $C_{14}$  dates is acknowledged. But the distressing fact that bristlecone and historical dates for the two earlier millennia seem clearly to indicate that  $C_{14}$  dates during this period are not too old but consistently too young is stated in a way that is not easily comprehended by the average reader (p. 307). Moreover, while considerable space is given to discussion of a peat bog that conceivably could fit into a model of post-flood buildup of  $C_{14}$ , there

is almost no mention of the numerous bogs that indeed give an opposite pattern or conform with an approximately uniform rate of buildup.

Studies of the daily growth of certain Paleozoic horn corals indicate an amazing harmony between three independent lines of evidence (paleontologic, astronomic, and radiometric), indicating that in Paleozoic time the number of days per year was much greater and has progressively decreased through geologic time to the present 365. Such increasingly sophisticated chronometers make the concluding statement of chapter twenty-six ("Continuing investigation of radiocarbon dating may be expected to bring greater harmony between the information God has given to us through the written Word and that through the natural world") overly optimistic if not dead wrong. Perhaps it would be in order to study most carefully whether we correctly understand the information God has given us in the written word.

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The resurgence in recent years of evidence favoring continental drift is one of the several significant topics not considered. The discovery of seafloor spreading — with progressively thicker and older accumulations of fossil organisms as one moves away from the midoceanic ridge, together with paleomagnetic reversals integrated with radiometric dates showing older dates with increasing distance from the rift zone — is difficult to harmonize with a short history of the earth.

Permian glaciation is considered in three sentences. Our skepticism toward Permian glaciation is at about the same stage at the present time as was our attitude toward Pleistocene glaciation in the days of G. M. Price.

My greatest concern is the impression the book will inevitably create in the minds of many readers. Problems for geologists and evolutionists are emphasized by prominent headings, whereas even the most damning problems to certain traditional fundamentalist points of view are rather obscurely mentioned in chapter summaries accompanied by statements indicating the need for further study. One is left with the impression that further investigation will produce evidence in favor of a short earth history.

It is commonly assumed that Coffin's positions are required if one is to defend the integrity of the Sabbath and preserve respect for the Bible and the value of the writings of Ellen White. But this is not necessarily true. Although it is beyond the scope of my review to go into this aspect of the subject, this aspect does represent an area of study that should be of fundamental concern to Adventists who are aware of the world they live in.

Last, I think the book is misnamed. Though it is not the fault of the author, the publisher's advertisements make broader claims for the book than are justified. The central issue with which the book deals is not so much whether Creation was by accident or design as it is a defense of a particular view of earth history derived, in turn, from a particular, literal interpretation of inspired writings to which all scientific evidence must conform. It is one thing to be a creationist — it is quite another to be a Flood geologist.

#### REFERENCES AND NOTES

- 1 Those who attribute nearly all of the earth's strata (p. 61) and many other geological phenomena to a single event, the Genesis Flood, are commonly referred to as "flood geologists."

- 2 William G. Chaloner, Spores and Land Plant Evolution, *Review of Paleobotany and Palynology* 1, 83-93 (1967).
- 3 Spackman, and others, *Palaeontographica* 117, 135-152 (1966). [See also Daniel Habib, Walter Riegel, and William Spackman, Relationship of Spore and Pollen Assemblages in the Lower Kittanning Coal to Overlying Faunal Facies, *Journal of Paleontology* 40, 756-759 (1966).]
- 4 Richard M. Ritland, The Nature of the Fossil Record in the Rocks of Eastern Oregon, *Spectrum* 1, 32-51 (spring 1969).

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