

THE GEOLOGIC COLUMN AND THE FLOOD OF GENESIS

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It has been 35 years since the Lord graciously used the book *The Genesis Flood* (Whitcomb and Morris, 1961) to revitalize the all-but-dead Christian belief in true Biblical creationism as revealed in the first 11 chapters of God's written Word.

The Genesis record of the creation of all things in six literal days, followed by the entrance of death and suffering into the world because of Adam's sin, then followed by the world-destroying cataclysmic deluge in the days of Noah, had been almost universally believed in Christendom for hundreds of years. But this sound Biblical doctrine had been undermined and almost destroyed in the 18th and 19th centuries by the uniformitarian geology of Charles Lyell, and the corresponding evolutionary biology of Charles Darwin and his followers. A seemingly final blow was the 1925 media circus known as the Scopes Trial. For a whole generation after that, even the fundamentalists who still believed in the Bible either accepted or ignored the evolutionary ages of geology, thinking they could somehow "harmonize" this system with the creation record of Genesis, by using either the venerable "day-age theory" or the geologically untenable "gap theory."

Such compromises were both Biblically and scientifically flawed, however, for many reasons which need not be reviewed here (Morris, 1985, pp. 203-256). The result was that, by 1960 at least, evolutionism in one form or another completely dominated the schools and colleges of the whole world, as well as most of the churches. The scientific and educational communities, in particular, were utterly unimpressed by these "Christian" compromises and total evolutionism seemed to have triumphed—as was loudly proclaimed by Julian Huxley and others at the great Darwinian Centennial in 1959.

Genesis or Geology

The "geologic ages," speaking as they did of a billion years of suffering and death, of evolutionary struggle for existence and survival of the fittest, so glaringly contradicted the Biblical revelation of a Creator who is a God of love and self-sacrifice, a God of both omniscience and omnipotence, that the very concepts seemed mutually exclusive to most people, especially if they understood both Genesis and evolutionary geology. Consequently, true Biblical creationism seemed dead, thoroughly discredited by historical geology, and the proposed compromises became objects of ridicule by almost everyone with any training in geology.

The "geologic ages," however, are actually nothing but a philosophical construct, formally organized in what is known as the "geologic column." This column is a theoretical cross-section through the earth's crust, from the surface down to the crystalline rocks which compose the "basement." The sediments comprising the crust have obviously been transported from various source areas mostly by moving water, then deposited

and usually hardened to become lithified sedimentary rocks (limestones, shales, sandstones, etc.). It is commonly assumed that the "oldest" sediments are at the bottom of the column, with the "youngest" on top. All of this is supposed to have taken hundreds of millions of years to accomplish—hence the geologic "ages."

Since the same lithologic types of rocks and types of structural features occur throughout the entire column, the only way the different "ages" of the rocks are identified is by the different types of once-living plants and animals found buried and fossilized therein. Thus, rocks that contain what are considered "ancient" forms of fossils are considered old, while rocks containing more "modern" forms are assumed to be young. This summary is over-simplified, but essentially does represent how rocks are "dated" and assigned to specific geologic "ages." The following statements from the standard geologic literature convey the significance of fossils in age-dating:

The geologist utilized knowledge of organic evolution, as preserved in the fossil record, to identify and correlate the lithic records of ancient time (von Engel and Caster, 1952, p. 423).

The only chronometric scale applicable in geologic history for the stratigraphic classification of rocks and for dating geologic events exactly is furnished by the fossils. Owing to the irreversibility of evolution, they offer an unambiguous time-scale for relative age determinations and for worldwide correlations of rocks (Schindewolf, 1957, p. 394).

... fossils have furnished, through their record of the evolution of life on this planet, an amazingly effective key to the relative positioning of strata in widely separated regions and from continent to continent (Hedberg, 1961, p. 499).

The age of rocks may be determined by the fossils found in them (Welles, 1978, p. 5).

Ever since William Smith at the beginning of the 19th century, fossils have been and still are the best and most accurate method of dating and correlating the rocks in which they occur (Ager, 1983, p. 425).

These statements are from older geological writings, but the concept and method of dating rocks by their fossil contents—assuming evolutionary progression—has not changed. To the objection that this method of dating was in use before Darwin popularized evolution, the answer is that evolutionism was being advocated long before Darwin. In fact, before very many fossils had ever been found and analyzed, it was assumed that they should be arranged chronologically to conform to the assumed "Great Chain of Being," a pantheistic concept originating in ancient Greece, and very prominently utilized by humanists during the Renaissance and later by pre-Darwinian evolutionists in particular. This concept assumed that there was an unbroken chain of entities in nature from the simplest to the most complex, and the early attempts to organize

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the fossil record in a chronologic sequence were, to a large extent, based on this ancient pagan idea (Morris, 1989, pp. 183-195).

It has long been recognized that the geologic column is an arbitrary construct, existing nowhere in full in any *local* geologic column. Various concepts were used in the early 19th century to combine all the scattered local columns into one global *standard* column.

By application of the principle of superposition, lithologic identification, unconformities, and reference to fossil successions, both the thick and the thin masses are correlated with other beds at other sites. Thus there is established in detail the stratigraphic succession for all the geologic ages (von Engeln and Caster, 1952, p. 417).

More recently, in a very comprehensive study of all the local columns on all the world's continents everywhere, creationist geologist John Woodmorappe (1981) demonstrated that the standard column was actually non-existent anywhere. He concluded that:

. . . 42% of earth's land surface has 3 or less geologic periods present at all; 66% has 5 or less of the 10 present; and only 14% has 8 or more geologic periods represented at all.

He also concluded that "slightly less than 1% has all 10 periods simultaneously in place (p. 67)."

Even that 1% is too high because it represents only the land surfaces. If the ocean bottoms are factored in (so far as known, none of these have the complete column in place, usually only containing Tertiary and possibly Cretaceous sediments), the portion of the earth's surface containing the complete column in place is only 1/3% or less.

Not even this small percentage tells the whole story, since none of the 10 geologic periods are *fully* represented anywhere. The average thickness of local geologic columns is only about one mile, whereas the standard column with all 10 periods and their subdivisions represented in their fullness would be *at least* 100 miles in thickness (von Engeln and Caster, 1952, p. 417)!

The geologic ages thus are tied to the standard geologic column, but the latter is hard to find, except in textbooks. There seems to be a legitimate question whether either the column or the ages really exist. It is impossible to insert these ages into the Biblical record and very difficult to locate the standard column in the geologic record. Both seem to be based essentially on belief in evolution, but evolution remains an unproved assumption—one which is not only contrary to Scripture but also devoid of any real scientific evidence. However, two recent creationist geologists have published tentative proposals for correlating the geologic strata with the Biblical record of the Flood (Froede, 1995a; Walker, 1994).

The identification of the various geologic ages, as noted above, is based on their fossil contents, but fossil taxons normally persist through many of these ages. Thus only certain index fossil assemblages are actually used to date the strata. Furthermore, fossils are not infrequently found out of their assumed places in the evolutionary sequences (an anomalous situation supposedly caused by reworking and secondary deposi-

tion) and whole formations are sometimes found out of the standard evolutionary order (a phenomenon supposedly attributed to the remarkable process of "overthrusting"). Even in those cases where the few ages in a local column are in the proper order, they often are not sequential, with much of the standard column missing. In addition, every geological period, from Cambrian to Tertiary can often be found resting on the basement, just as every period can often be found right on the earth's surface. There seems to be nothing very standard about the standard geologic column!

The standard column does serve evolutionists well, of course, as their best argument for evolution. The fossil record, even though it contains *no true transitional fossils* (Gish, 1995), is still presented as a persuasive evolutionary argument by means of its organization into the geologic column.

. . . fossils provide the only historical, documentary evidence that life has evolved from simpler to more and more complex forms (Dunbar, 1960, p. 47).

Naturalists must remember that the process of evolution is revealed only through fossil forms (Grassé, 1977, p. 4).

. . . we must look to the fossil record for the ultimate documentation of large-scale change. In the absence of a fossil record, the credibility of evolutionists would be severely weakened. We might wonder whether the doctrine of evolution would qualify as anything more than an outrageous hypothesis (Stanley, 1979, p. 2).

In view of the vital importance of the standard geologic column and its associated fossil record to the whole question of evolution, and in view of the ephemeral and variable nature of the local columns which supposedly can be fitted into it, as well as the utter non-existence of genuine scientific evidence for evolution at all, it is surely appropriate to ask whether there might be a better explanation for the fossil record than the geologic column and its assumed evolutionary ages.

The Global Flood

Indeed there is a better explanation. The divinely inspired record of the Bible describes a global hydraulic cataclysm that devastated the antediluvian world, killing all of its land-dwelling animals and humans (except those in Noah's Ark), covering all the mountains of the world at its crest and continuing for a whole year. If such a cataclysm (involving tectonic and volcanic activity on a massive scale, as well as torrential rains and violent winds, affecting the entire world) really occurred, then it would definitely and profoundly affect the geologic record. If any earlier geological deposits had ever been formed, they would almost certainly be overthrown, reworked and redeposited, as well as destroying all the pre-Flood topography. After it was all over, including its after-effects, the resulting worldwide "geologic column" would be a record, not of the evolution of life over many long ages, but rather of the destruction of life in one short age, that of the Flood period.

This, in fact, was exactly the belief of the founding fathers of the science of geology—men such as Steno,

Woodward, Burnet, Whiston and others, and endorsed by leading scientists in other fields such as Isaac Newton. This paradigm later shifted to evolutionary uniformitarianism, especially through the publications of Lyell and Darwin, with the way being eased by the compromising multiple-flood views of Cuvier, Buckland, Sedgwick and others.

As noted before, evolutionary uniformitarianism has held sway ever since. The various proffered pseudo-Christian compromises (day-age theory, gap theory, multiple-catastrophe theory, etc.) seemed to make no impact whatever on the scientific and educational worlds. It is disconcerting now to see many Christians who consider themselves creationists still proposing such theories, both to appease the evolutionists and also to oppose those whom they call "young-earth creationists."

The fact is, however, that the remarkable modern revival of creationism (there are now thousands of scientists, in addition probably to millions of people in other fields, who have become literal creationists) has been brought about primarily by a belief in the Flood as the true explanation of the geologic column. This was the main theme of the book *The Genesis Flood*, first published in 1961. The resulting formation of the Creation Research Society and scores of other creationist organizations all over the world has been based on the same premise—that of literal six-day creationism and Flood geology.

The current complaint of the so-called "progressive creationists" that our emphasis on six-day creation and the global cataclysmic flood is somehow hindering their efforts to win scientists and other intellectuals to Christ is falsified by the fact that a whole century of advocating progressive creationism and other compromise theories resulted only in alienating practically the whole intellectual world. The modern revival of strict creationism, on the other hand, has resulted in great numbers of intelligent and well-educated people turning back to God and His Word. If results mean anything, the Lord has indeed placed His blessing on the great truths revived and once again emphasized and applied in *The Genesis Flood* and the movement which it catalyzed. The results over the past 35 years have been remarkable, and both Biblical and scientific creationism are now alive and well.

Therefore, it is now becoming a cause for concern that a growing number of young-earth creationists are seemingly about to repeat the mistakes and compromises of the past, arguing that the Biblical Flood cannot really explain the geological records after all. Some are concluding that the Tertiary formations are to be attributed to a number of post-Flood geological catastrophes, and some are even alleging that the Flood can only account for the Paleozoic rocks, or maybe not even all of these. Some are also suggesting that at least a portion of the fossiliferous Proterozoic rocks, were laid down by episodic events of some kind before the Flood.

If such equivocations continue, the Flood itself will eventually be used only to account for the marine strata of the Cambrian and Ordovician "periods." Sooner or later difficulties will be found even in these, and the Flood will once again (as so often in the past) be explained away as only a tranquil flood or a local flood. Some (e.g., Davis Young, Glen Morton) have

already gone this whole route, starting out not too many years ago as full-fledged Flood geologists but then allowing supposed geological difficulties gradually to relegate the Flood to only a trivial part, if any, of the geologic column.

There are, indeed, still many unresolved geological problems in the Flood model of geology and recent creationism, but there are many more serious Biblical problems with the uniformitarian old-earth model. For those of us who really believe the Bible to be God's inerrant Word, *that* premise ought to govern our interpretations of the geologic data. We should *not* allow the latter to determine how we interpret the Bible!

Consequently, we need to look carefully first of all at the Biblical reasons for understanding the great Flood as the cause of all-or at least most-of the geological record of earth history. For simplicity we can still call this record the geologic "column," even though the term itself may be a misnomer. Such recent writers as Froede (1995a) and Walker (1994) have at least proposed tentative Flood-stage models for the various systems of the so-called standard geologic column.

The Bible and the Geologic Column

Consider first the world before the Flood. Although that world had rivers, there was apparently no rainfall (Genesis 2:5), the rivers presumably being fed from controlled artesian springs (Genesis 2:10). The entire world system had been designed to be "very good" (Genesis 1:31), so there could have been no storms or floods. Consequently there were few—probably no—sediments deposited in the antediluvian seas by rivers or any other geological agents.

Some have suggested that certain sedimentary rocks may have been formed on the third day of creation week, when dry land appeared out of the primeval waters (Genesis 1:9), though this seems unlikely. Whatever processes God may have used in forming the various systems and structures of the earth during creation week, He stopped using when the week and His work were finished (Genesis 2:1-3), so that we cannot use present processes of sedimentation as indicative in any way of the miraculous processes He was using then. At the very least, since plants and animals were not created until later, no fossils were formed on that day when the lands appeared, or apparently on any later day during the week of creation.

Although men and women began to die after Adam's sin, they still lived to great ages, and this was probably true of the larger animals as well. How their bodies were disposed of after death, the Bible does not say, but there seems no way they could ever have been preserved as fossils at least in any significant numbers. Consequently, it seems unlikely that *any* of the geologic column—not even the sedimentary rocks of the Proterozoic—could have been formed before the onset of the great Flood. It is barely possible that certain "trace fossils" in the Precambrian rocks may eventually prove to represent an antediluvian environment formed before the Flood and later buried and preserved by the onset of the first Flood sediments.

With the coming of the Flood, however, this antediluvian economy was drastically changed and the greatest regime of death and destruction the world has ever known came on Planet Earth. In "the same day

were all the fountains of the great deep broken up, and the windows [or 'floodgates'] of heaven were opened. And the rain was upon the earth 40 days and 40 nights . . . and the mountains were covered. And all flesh died that moved upon the earth. . . . All in whose nostrils was the breath of life, of all that was in the dry land, died. And every living substance was destroyed which was upon the face of the ground, both man, and cattle, and the creeping things, and the fowl of the heaven" (Genesis 7:11-23).

That is only a portion of the dreadful eye-witness record in Genesis, as kept probably by the sons of Noah in the ark (Genesis 10:1). Job said later that the terrible flood waters had "overturned the earth" (Job 12:15). Jesus said that "the Flood came and destroyed them all" (Luke 17:27), and Peter said that "the world that then was, being overflowed with water, perished" (II Peter 3:6).

There has never, in all human history, been another event remotely comparable to this cataclysmic world-wide flood. If the Biblical record is true and understandable and *all creationists ought to believe this*—the greatest quantity and extent of erosion and sedimentation in world history must have been caused by the Flood, and therefore also the greatest amount of fossilization.

All this, of course, was still further augmented by great tectonic and volcanic activity, when "all the fountains of the great deep were broken up" (Genesis 7:11). Still more geologic activity occurred in the latter stages of the Flood, after the first 150 days, when "God made a wind to pass over the earth, and the waters assuaged; The fountains also of the deep and the windows of heaven were stopped, and the rain from heaven was restrained; And the waters returned from off the earth continually" (Genesis 8:1-3). The waters continued to go down for another five months before those in the ark, resting on one of the Ararat mountains (probably present-day Mount Ararat, the highest peak in the very mountainous region in eastern Turkey, a volcanic mountain now 17,000 feet high), could even see the tops of other high mountains nearby (Genesis 8:5).

The "assuaging" of the waters, as they drained rapidly off into new ocean basins (with, no doubt, much additional erosion and deposition of sediment) was caused by great tectonic uplifts, as described in Psalm 104:6-9:

Thou coverest [the earth] with the deep as with a garment: the waters stood above the mountains. At thy rebuke they fled; at the voice of thy thunder they hasted away. They go up by the mountains; they go down by the valleys unto the place which thou hast founded for them. Thou hast set a bound that they may not pass over; that they turn not again to cover the earth.

The phrase "go up by the mountains" can as well be translated "the mountains go up," and many versions so render it. The total picture is one of rapid orogenies and high velocity run-off as the mountains rose up. This phase of the effects of the Flood has been discussed in the recent articles by geologist Carl Froede (1994, 1995b).

The end result of such tremendous geologic upheavals (hydraulic, volcanic, tectonic, atmospheric) is that, as Peter says: "The world that then was, being overflowed

[literally, 'cataclysmed'] with water, perished." There could never have been greater death and burial of plants and animals in flood and volcanic and wind sediments in all world history than during this uniquely devastating cataclysm. Surely, the great majority of fossils now entombed in the sedimentary rocks of the earth's crust must be attributed to the Flood, at least as far as the Bible is concerned.

The Bible does mention other great catastrophes such as earthquakes and local floods. But these were all *local* and *brief* in duration—in no way comparable to the mountain-covering, year-long Flood of Noah's day. There is even the record of the long day in the time of Joshua, when presumably the earth's rotation slowed to a stop, then started up again, making the daylight last twice as long as on an ordinary day (see Joshua 10:11-14). Again, however, though the effects may have been global, they lasted only one day and probably involved very little geological disturbances, especially if the deceleration occurred gradually instead of instantaneously.

There is, of course, a very brief reference to a time when "the earth was divided" in the days of Peleg, who was presumably born 101 years after the Flood, assuming no gaps in the genealogical chronologies of Genesis 10 (note especially Genesis 10:25 and 11:10-16). Some young-earth creationists suggest that this statement may refer to a splitting and separation of one great post-Flood continent into the seven continents and many islands of Earth's present geography, resulting in a worldwide visitation of volcanic eruptions and destructive tsunamis.

It seems very likely, however, that such a monumental event as this, producing the planet's new continental/oceanic configurations in a brief time, as well as another global devastation like the Flood itself, would be given a much more prominent description in the Bible than a few words in one single verse! Not too much later, for example, God's Word devotes a whole chapter (Genesis 19) to the much smaller geological catastrophe of the destruction of Sodom and Gomorrah. The latter catastrophe is also mentioned several times in later books of the Bible, but nowhere else is there even a hint of the continents splitting and moving apart.

There have indeed been other later floods, earthquakes, landslides, and other geological catastrophes in Earth history, and some of these no doubt left much death and even occasional fossils in their wake. In a recent book, Eric von Fange (1994) has compiled an impressive list of Scripture verses that speak of violent catastrophes, some of which probably refer to post-Flood residual catastrophism. These were all relatively local and brief, however, warranting only superficial mention in the Bible. As far as God's Word is concerned, the great Flood of Genesis must have produced many times more fossils than all the others combined. Everything else is trivial in relation to the geological effects of the Flood (these effects include the resulting glacial period and other residual catastrophism). The Pleistocene Ice Age, for example, was caused by the Flood, as an after-effect. This has been shown very persuasively by meteorologist Michael Oard (1990).

The record of the Flood does not specifically mention the death and fossilization of marine animals, but this phenomenon must have been very widespread,

with the breaking-up of all the fountains of the great deep. The record *does* state, of course, that "all that was in the dry land died" (Genesis 7:22). Every terrestrial mammal, every reptile, every bird, every amphibian, died. Undoubtedly many of these were trapped in the great shifting sediments and eventually buried and fossilized. If any later floods or landslides preserved a few land animals as fossils, the Genesis Flood must have buried and preserved enormous numbers.

This would not necessarily be the case with human beings, however. More than any other creatures, men and women would be able to escape burial in sediments - by running, swimming, climbing, floating on rafts, etc. - even though they would finally have drowned in the Flood waters. Their bloated, floating bodies would seldom have been trapped in the underwater sedimentation. Fossilization normally requires rapid and permanent burial, in addition to death, and relatively few humans, in comparison to land animals, would be preserved as fossils. Any that were preserved would probably never be found, with any remains scattered throughout the enormous volume in the global sediments laid down during the Flood.

Science and the Geologic Column

Remember that the geologic column is largely an artificial construct, not existing as a whole in any one location. *Local* geologic columns do exist, however, and it is these that preserve the remnants of geologic history.

In general, the few distinct geologic "ages" represented in any given local column actually reflect the habitat elevations and ecological communities that once existed at that location, or else at the location from which they had been transported-possibly *en masse*. That is, *other factors being equal*, they would be deposited in the same communities of organisms with which they had lived and roughly in the same relative elevations at which they had lived, even though transported considerable distances. Marine invertebrates would tend to be buried at low elevations, fishes at higher elevations, amphibians at the original interface between sea and land, reptiles a little higher, birds and mammals still higher. Marine sediments would be deep down in the column, land sediments at the top, other things being equal.

This is exactly the order usually found in each local column. Many exceptions to this generalization can be found, of course, due to hydrodynamic sorting, reworking and mixing of sediments, etc., but this is the usual order. Furthermore, the older ideas of the uniformitarians, who thought that every formation was laid down very slowly over long ages, are rapidly being abandoned by the modern school of geologists. More and more it is acknowledged that *all* geologic events now preserved in the geologic column must have occurred very rapidly. For those who still think in terms of slow processes, note the following typical statements from leading evolutionary geologists-geologists who still believe in evolution, but in a catastrophic (or *episodic*) context rather than one of uniformitarianism.

The British geologist, Derek Ager, has been in the vanguard of this neo-catastrophist movement. He said:

... the evolution of continents and of the stratigraphical column in general, has been a very epi-

sodic affair, with short "happenings" interrupting long ages of nothing in particular (Ager, 1993a, p. 132).

In other words, the history of any one part of the earth, like the life of a soldier, consists of long periods of boredom and short periods of terror (p. 141).

In Ager's last book, written shortly before his death, he noted that:

... we cannot escape the conclusion that sedimentation was at times very rapid indeed and that at other times there were long breaks in sedimentation, though it looks both uniform and continuous (Ager, 1993b, p. 49).

Ager noted two interesting examples of catastrophism, among many others.

Probably the most convincing proof of the local rapidity of terrestrial sedimentation is provided by the presence in the coal measures of trees still in position of life (p. 47).

One of the most remarkable geological sights I have ever seen was at Mikulov in Czechoslovakia, where an excavation in Danubian loess shows the remains of literally dozens of mammoths (p. 51).

These mammoth fossils deposits, of course, are only one example of multitudes of fossil graveyards all over the world. In fact, as we have noted, the geological "ages" are identified by their fossil contents, and the very existence of fossils-particularly of any size-requires catastrophic burial.

In a review of Ager's last book, a geologist at the Paleontological Research Institution near Cornell University in Ithaca, New York, has made the following cogent observations.

Indeed geology appears at last to have outgrown Lyell. . . . The last 30 years have witnessed an increasing acceptance of rapid, rare, episodic, and "Catastrophic" events.

The volume is the summation of a lifetime of global geological work by one of the most influential stratigrapher-paleontologists of his generation, a highly eclectic compilation of the author's geological observations from around the world in support of the general view that the geological record is dominated not by slow, gradual change, but by episodic rare events causing local disasters, . . . this volume may mark the arrival of catastrophism at the status quo (Allmon, 1993, p. 122).

Previously, Robert Dott, prominent American geologist, had made the same point in his presidential address to the Society of Economic Paleontologists and Mineralogists.

... the sedimentary record is largely a record of episodic events rather than being uniformly continuous. My message is that episodicity is the rule, not the exception (Dott, 1982, p. 16).

A leading European geologist rejects uniformitarianism in favor of what he calls "actualistic catastrophism."

In my presidential address to the International Association of Sedimentologists, I pointed out the

fallacy of the Lyellian dogma and coined the term actualistic catastrophism (Hsu, 1990, p. 310).

Catastrophism is enjoying a renaissance in geology. . . . Many of us are accepting that unusual catastrophic events have occurred repeatedly during the course of Earth's history (Hsu and McKenzie, 1986, p. 11).

A prominent younger paleontologist calls uniformitarianism an albatross.

Our science is too encumbered with uniformitarian concepts. . . . Detailed paleo-environmental data tell us that the past is the key to the present, not vice versa (Kauffman, 1987, p. 531).

Another influential American geologist lists and describes many fallacies of uniformitarianism, and makes the following observation.

The idea that the rates or intensities of geological processes have been constant is so obviously contrary to the evidence that one can only wonder at its persistence (Shea, 1982, p. 457).

Similar quotations and examples could be multiplied at great length (Austin, 1984). Although many geologists continue to harbor a sort of emotional attachment to uniformitarianism in the old Lyellian sense, the facts of geology are against them, and this realization is leading to a plethora of literature on mass extinctions, asteroid impact, climatological revolutions, and other catastrophic "rare events." Nevertheless, they all with one voice continue to reject the global Flood of Noah's day, and continue to believe in long ages and evolution. They are almost neurotically afraid of being associated with the Bible and Biblical creationists. Derek Ager was particularly insistent on this distancing posture.

This is not the old-fashioned catastrophism of Noah's flood and huge conflagrations. I do not think the bible-oriented fundamentalists are worth honoring with an answer to their nonsense [this is an easy way of ignoring the overwhelming evidence in favor of our "nonsense"- writer]. No scientist could be content with one very ancient reference of doubtful authorship [Ager's easy way of ignoring the overwhelming evidence for the divine inspiration of the Bible - writer] (Ager, 1993b, p. xix).*

As Ager (and all the others quoted above) imply, the catastrophes they are postulating are intermittent, local or regional - sometimes even global - catastrophes, but they are all assumed to be separated from each other by millions of years when nothing much was happening geologically. They each may have caused mass extinctions, which they assume provided opportunities for the evolutionary "punctuations" so urgently needed by modern evolutionary biologists, in the absence of true transitional forms in their billions of fossils.

These geological "gaps" have left little or no legible record, except the necessity to provide time for evolution.

*Dr. Ager once wrote to the writer, complaining about my quoting him, and wanting me to know that he did not believe in creationism or in *Biblical* catastrophism. I had never implied that he did, of course, but his evidence for catastrophism was worth noting.

Thus it appears that indeed the geological record is exceedingly incomplete. . . . If erosion and other ravages of time are the cause of the missing record, one should expect the incompleteness to increase with age. This, however, is not the case, and the explanation cannot be so simple (Van Andel, 1981, p. 397).

The geological record may thus be a record of rare events separated on any time scale by numerous and long gaps (p. 398).

I maintain that a far more accurate picture of the stratigraphical record is of one long gap with only very occasional sedimentation (Ager, 1993a, p. 52).

In other words, what we see in the "geologic column" is catastrophism. What we *do not see* is the long ages when nothing was happening in between the catastrophes.

Except, that is, when macro-evolution must have been happening, and happening so rapidly that no intermediate forms could be fossilized to provide any evidence that it was happening. So the story goes.

At one time in the honored past, science was supposed to be based on sound factual data, on observation and experimentation, not on the metaphysical speculations which evolutionists would pass off as science today. Many Uniformitarians have finally been willing to admit that Lyell was wrong, because all geologic observations bear witness of catastrophe, not uniformity with the present. But they still cling to the notion of *unobserved* millions of years in between their catastrophes.

The reason why they must do this, of course, is that they would otherwise have to give up their evolutionism as well as their uniformitarianism. Other than this, there is no truly objective reason why all these individual catastrophes could not be merged into one gigantic global cataclysm, exactly as described in the Bible!

As a matter of fact, this is exactly what the evidence indicates. That is, there are no physical, chemical or structural differences between the different "ages." As mentioned before, there are limestones, shales, sandstones, basalts, faults, folds, thrusts, marine formations, etc., in rocks of every assigned "age." There are the same metals and minerals in rocks of every age.

The only differences are in the fossils and, as we have seen, the "ages" are based on special index fossils. Every phylum of animal life is represented in every "age," as well as most classes and orders. Many-probably most-taxons extend through many ages, so not even fossils are useful in age-dating, in most cases. The index fossil assemblages that are used, as we have noted, are essentially arranged in accordance with evolutionary presuppositions. Yet the resulting fossil record is, as we have also noted, taken as the best evidence for evolution.

All of this adds up to the fact that there is no real evidence for the geologic ages except evolution, and no real evidence for evolution except the geologic ages. In any other field of science, such a system would be called flagrant circular reasoning. There is, therefore, no real evidence that the entire geologic column (to the extent that it actually exists) could not have been formed in a single worldwide complex of catastrophes extending over a relatively short duration of

time, finally comprising a unique hydraulic/volcanic/tectonic cataclysm. This, of course, is also what the Bible teaches.

No Time Break in the Geologic Column

There is one other very important point to note in this connection. The geologic column, as it has been constructed, is supposed to have worldwide validity, with each early age (i.e., lower in the column) grading into the next age above it. Even though the complete column exists nowhere, it is argued that one can locate adjacent regions where the uppermost layers in a formation truncated by erosion in any given local column will grade upward into the lowermost layer in an adjacent overlapping column, and so on. In this way, as noted before, "there is established in detail the stratigraphic succession for all the geologic ages" (von Engeln and Caster, 1952, p. 417). Although there may be a local "unconformity" at the erosion surface (whereas a "conformity" would indicate uninterrupted deposition), such an unconformity would only extend a limited distance before grading into a conformity.

At one time, in the early 19th century especially, it was believed that each of the major periods was separated from those above and below it by worldwide "unconformities," assumed to be erosion surfaces representing unknown durations of time. Thus the Cambrian Period was separated everywhere from the Ordovician Period above it by a worldwide break in the stratigraphy, marking a time period of unknown length. There are, of course, many *local* unconformities, which may well represent time gaps, or even boundaries between "ages," in various *local* columns.

It is now known, however, that there are no *worldwide* unconformities, and therefore *no worldwide time gaps*, in the standard geologic column. Deposition of sediments continued at some point or points in the world throughout the entire period of deposition of the geologic column on the crystalline basement rocks, at least until reaching the still unlithified sediments near the surface.

This is an important point, so needs documentation. Note a few such confirmations.

The employment of unconformities as time-stratigraphic boundaries should be abandoned. . . . Because of the failure of unconformities as time indices, time-stratigraphic boundaries of Paleozoic and later age must be defined by time, hence by faunas (Wheeler and Beasley, 1948, p. 84).

Here it is once again! Geologic ages are marked by their fossils, and nothing else—not by unconformities, not by type of rock, not by superposition or anything else—only by fossils on the basis of their assumed stage of evolution, or location in the Great Chain of Being.

It is widely acknowledged that chronostratigraphic units [that is, geologic systems representing a given age] . . . do not coincide everywhere with the diachronous boundaries of lithostratigraphic and biostratigraphic units [that is, specific geologic formations] (Lucas, 1985, p. 764).

Many unconformity bounded units have been erroneously regarded as lithostratigraphic units, even though they are characterized not by lithologic unity but by the fact of being bounded by unconformities. . . . Similarly, many unconformity-bounded units have been erroneously considered to be chronostratigraphic units in spite of the fact that unconformity surfaces are apt to be diachronous [that is, crossing supposed time boundaries] and hence cannot constitute true chronostratigraphic boundaries (Chang, 1981, p. 23).

Finally, Dr. Amos Salvador, Chairman of the International Subcommittee on Stratigraphic Classification, has said:

Bounding unconformities were the basis for establishing many of the earliest stratigraphic units, recognized in western Europe. Many of the systems of the presently accepted Standard Global Chronostratigraphic Scale were originally unconformity-bounded units. This procedure has not been restricted, however, to the earliest days of stratigraphic work or to western Europe; it has been used, and continues to be used, in all parts of the world. Unconformity-bounded units became very popular at the time tectonic episodes were considered essentially synchronous worldwide, but did lose favor among geologists when synchronicity was found not to hold true (Salvador, 1987, p. 232).

It is evident that, if unconformity surfaces are not isochronous surfaces and do not extend worldwide, there is no worldwide time gap in the geologic column. For example, somewhere the middle Ordovician grades conformably into the upper Ordovician and somewhere the upper Ordovician grades into the lower Silurian, and so on. The deposition of the entire column—whether or not it is believed to represent the geologic ages—proceeded from bottom to top (Proterozoic through Tertiary) with no worldwide interruption in its deposition.

That being true (and it is), and if also every deposit has been formed very rapidly (as the neo-catastrophists now recognize), then it follows as day follows night that *the entire column was formed rapidly!* If all formations represent local catastrophes, as acknowledged now by Ager and most other active geologists, then they must all be interconnected and essentially continuous, forming the tremendous record of a global hydraulic/volcanic/tectonic cataclysm—nothing less than the great Flood of the Bible!

Attempts to Reduce the Scope of the Flood

One can, of course, find many difficulties in applying Flood geology to the entire geologic column. These become especially troublesome in trying to correlate all the local columns of the world with each other and all within the context of one global Flood.

Biblical creationists are understandably tempted frequently, when they undertake such studies, to abandon their attempts, reverting back to the old Cuvierian ideas of multiple global catastrophes, yet trying somehow to confine them all within the Biblical chronology of several thousand years since the Genesis creation

week. Some have gone back even further, giving up the literal creation-and-flood record altogether, in reverting either to progressive creationism or even to theistic evolutionism.

Such backsliding, however, requires more distortion of Scripture than any Bible-believing Christian should ever consider. It is far easier, as well as more realistic in the light of eternity, to reinterpret the geologic data in the light of God's revelation.

It should be remembered that a uniformitarian approach, even to these catastrophic data, flies directly in the face of the warning in II Peter 3:3-6 that such an approach constitutes "wilful ignorance." The Flood was unique in size, in scope, in complexity and in duration-not to mention its control by divine providence, possibly even miraculous in some degree-so much so that it cannot really be compared with later geological processes-not even other major geologic catastrophes. To say that such-and-such a local geologic formation or sequence cannot be assimilated in a Flood explanation is to say more than one can prove. We cannot know all that was happening during the Flood year, and it is spiritually presumptuous to think we can. It is all right to speculate, but such speculations must be constrained within the limits imposed by God's Word, taken as a literal and perspicuous historical record of what happened. It is encouraging that a growing number of younger geologists are now attempting to do just that (e.g., Woodmorappe, Oard, Froede, Walker, and others).

The plain inference of the Bible that the geologic deposits of the Flood were orders of magnitude greater than those of any supposed later catastrophes, supported by the geologic evidence that the complete geologic column, Proterozoic through Tertiary, was formed by continuous catastrophic deposition, would seem to make it mandatory that Bible-believing Christians interpret these deposits as Flood deposits either laid down during the Flood year or during its continuing after-effects.

There are certain other geological considerations, as compared with Biblical statements, that still further strengthen this requirement. The Mesozoic strata, with their great numbers of fossils of dinosaurs and other reptiles, as well as the Tertiary strata, with their extensive mammal fossils, must have been deposited by the Flood, in view of the Biblical stipulation that all land animals died in the Flood (e.g., Genesis 7:22).

The suggestion made by certain creationists (actually young-earth creationists who do believe in the global Flood) that only the Paleozoic strata should be attributed to the Flood, is clearly refuted by that Biblical statement. How could relatively trivial later catastrophes* produce vast numbers of land-animal fossils when the immensely greater global Deluge produced practically none? Those who advocate this type of scenario would have to assume that the Flood only *drowned* all the animals, *not burying any* in the Flood sediments. As for the sediments, worldwide and a mile deep on average, did these sediments carefully avoid all land animals and entomb only those in the ocean? Many of the latter, being accustomed to life in

the water, ought to be able to escape burial more effectively than land animals, but both fish and marine invertebrates were entrapped by the billions.

Actually, the Bible does not even mention that any marine animals died at all, and many did continue living right through the Flood year (Noah did not have to take marine animals on the ark, as they could survive without it). The Genesis record only tells us that all land animals died in the Flood.

Furthermore, there is an abundance of marine deposits and marine fossils dated Mesozoic and Tertiary also, as well as Paleozoic. Some of these are very extensive, covering vast areas; in fact, the index fossils for both Mesozoic and Tertiary periods are mainly marine animals. Were these extensive deposits also post-Flood? Were there later eruptions of the fountains of the great deep which could produce these marine fossil beds on the continents as well as those of the Paleozoic? The Bible certainly does not hint any such thing. If not, then, just how *could* they have been formed? Nothing like this has been recorded in all human history (which means all post-Flood history). Any great post-Flood upheavals that would generate the vast Mesozoic and Tertiary deposits (and these are worldwide in occurrence!) would surely have merited some kind of significant Biblical description if they really had occurred. The Bible mentions various later earthquakes, but nothing like this. The account of the great Flood involved most of four chapters of the Bible, plus a number of references later in the Bible. Why is there no clear reference to these other catastrophes at all?

Furthermore, some of these Tertiary marine deposits became vast rock formations which were quarried by early post-diluvian nations for their construction projects. A prime example of this is the Great Pyramid of Egypt, erected not more than a few centuries after the Flood. It was built of huge blocks of well-lithified nummulitic limestone, containing great numbers of well-preserved nummulite fossils. Nummulites were foraminifera, one-celled marine fossils usually dated Eocene or later, found in abundance especially in the Mediterranean area. It would seem very clear that at least *these* Tertiary deposits must have been laid down and lithified in the Flood itself, not some hypothetical post-Flood flood.

We need to recall that the Apostle Peter, in his last few words before his martyrdom, warned Christians living in the last days not only about the dangers of naturalistic uniformitarian thinking (II Peter 3:3-6) but also about the lethal danger of distorting the plain meaning of God's Word in order to accommodate that naturalistic way of reasoning, "which they that are unlearned and unstable wrest, as they do also the other scriptures, unto their own destruction" (II Peter 3: 16). Peter said, by divine inspiration, that the real answer to the wilful ignorance of the uniformitarian evolutionists is in the great Flood, "Whereby the world that then was, being overflowed with water, perished" (II Peter 3:6)-not in some hypothetical pre-Flood or post-Flood catastrophes about which the Scriptures are silent.

If we try to insert some sort of additional worldwide catastrophe or catastrophes into Genesis 1:9 or Genesis 10:25 or Joshua 10:13 or Job 38:8 or Psalm

*The Bible clearly states that the great Flood would never be repeated in scope (e.g., Genesis 9:11, 15). Any later catastrophe must therefore be trivial in relation to the Noachic deluge.

104:6 or any of the other verses that have been misused like this, merely in order to sidestep certain problems in Flood geology, are we not in danger of ignoring Peter's warning about wresting Scripture? It is better to leave some geological problems for further study than to let uniformitarian pseudo-science and our own limited understanding dictate our Biblical interpretations. "For the word of the LORD is right; and all His works are done in truth" (Psalm 33:4).

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PANORAMA NOTES

Hairy Pterosaurs (*Sordes pilosus*)- A Progress Report

In 1971, A.G. Sharov of the Soviet Academy of Sciences discovered a fossil pterosaur which was given the name *Sordes pilosus*, meaning "filthy fur" (Desmond, 1977, p. 192).

In recent works Unwin and Bakhurina (1994) and Hect (1994) describe the covering on the wings as wing fibers. The wings in this specimen seemed to cover most of the rest of the body in death. These fibers are viewed to be structures that strengthened the wing. Unwin has not seen any evidence to date of hair, while Kevin Padian of the University of California at Berkeley says he has seen fossils with body hair (Hect, 1994). How does this argument affect creation? Clearly, concerning the non-body hair situation, no problem arises. However, would a problem arise if there were a hair-like covering on *Sordes pilosus*? I feel the answer is undoubtedly not. Creation's answer would lie in the law of symmetric variation and the gene-theme model (Brown, 1987). God could have

created such a creature with a hair-like covering, or because it had the genetic make-up within its genome, individuals with the right type of genetic change could have introduced a variation within those genes to produce a hair-like covering.

The kind's genetic variation potential is enormous. In man for example the variation potential is greater than the number of atoms in the known universe (Ayala, 1978, p. 63). All this variation potential exists without ever going beyond the kind.

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