

Letters

THE GLOBAL STRATIGRAPHIC RECORD

Dear Editor,

I have to completely disagree with Steven Robinson's¹ recent interpretation of Earth history based on his use of the conceptual uniformitarian stratigraphic time-scale. My disagreement stems from his attempt to join the evolutionary (uniformitarian) geologic time-scale and the biblical account of Earth history found in Genesis in order to explain the physical rock record. This union of mutually contradictory concepts is not merely self-annulling scientifically, but a contradiction of the biblical record. Stratigraphic interpretation, within the framework of the young-Earth Flood model, will not be solved in following the uniformitarian geological column. Furthermore, I suggest that **no** young-Earth Flood model boundary (for example, pre-Flood/Flood, Flood/post-Flood) will ever be determined in following the conceptualised uniformitarian stratigraphic column. We should instead focus our efforts in defining the stratigraphic rock record along biblical guidelines as has been suggested by both Walker² and Froede.³ What is at issue here is the basis and validity of the conceptual evolutionary (uniformitarian) stratigraphic column and its role in defining the biblical record of Earth history. Can a system defined by the tenets of evolution and the vastness of time be wed to the Scriptural account of Genesis?

The Uniformitarian Global Stratigraphic Record

For any given locale, the rock record is usually represented by a vertical column showing the strata preserved there. The comparison of a given column to any distant column is based on their respective lithologies and fossils. Where no direct correlation exists, other methods are then

employed (for example, superposition, unconformity boundaries, floral/faunal/facies succession, etc.). However, where lithologic units and their fossils are found to match then a direct comparison is believed to be accurate — this may or may not be true. This supposition is the central point in the uniformitarian definition of 'time'. Robinson suggests that a direct comparison of biostratigraphic units must occur on a global scale to date Earth's biblical history. His method for conducting this comparison is based on fossils and the presumed continental plate positions derived from palaeogeographic maps (which are also based on evolutionary palaeontological assumptions).

In trying to interpret the uniformitarian geologic column within the Flood model, Robinson declares that his interpretation solves all the issues and problems raised by interpretations suggested by others following the same conceptualised uniformitarian time-scale. I suggest that following the uniformitarian stratigraphic approach in defining the rock record (within a biblical framework) is doomed to failure from the onset. In my proposal for the development of a new creationist geologic time-scale based on the young-Earth Flood model (that is, the biblical framework), I suggested that we abandon the uniformitarian concept of vast amounts of time, and floral and faunal evolution, which form the basis of the time/rock units on which this system is based. The biblical record of Earth history and the conceptual uniformitarian interpretation simply do not mix. However, Robinson has suggested that

The assertion that the geologic column is built on the premise of biological evolution is untrue. Fossils are used to assign rocks a place in the geological column not because the order in which they occur shows a gradual evolution from simpler to more complex

*- life — it does not — but because they occur in a definite succession.*⁴

This statement (also echoed by Snelling,⁵ Garton,⁶ and Garner^{7,8}) forms the core issue in attempting to resolve the global conceptual uniformitarian stratigraphic column within the biblical record of Earth history. I suggest that if these two opposing frameworks can be welded together then the biblical record **will** support the evolution of life on Earth, and not require the hand of God. Not believing that these two opposing interpretations are possible and in support of a Scriptural approach to defining Earth history, I wish to entertain the reader with just a few of the many references which suggest that the conceptual uniformitarian stratigraphic record **is based on evolution and the succession of life**, and as such should not be used to define any time event within our young-Earth Flood model (that is, the biblical record). Additionally, I will show the reader that fossils drive the radiometric dating of rocks as well as defining boundaries between strata. Fossils serve as the central means of establishing evolutionary assumptions and the passage of vast amounts of time — all of which is counter to the Scriptural record.

In discussing the growth of a 'prehistoric' time-scale, William B. N. Berry⁹ has written

*The units of the time scale based on organic evolution today form the basic framework of historical geology*¹⁰

*'Evolution thus is the very basis of the geologic time scale although the scale itself was erected before Darwin and Wallace presented their principle of natural selection to the scientific world.'*¹¹

'The correct application of the method of telling time by use of fossils involves principles of structural and stratigraphic

geology and many principles of biology. Essential to the entire procedure, it must be emphasized, is the collection of fossils in stratigraphic sequence.¹²

John Harbaugh¹³ described the development of geologic time, codified by the uniformitarian stratigraphic record, as

*'The progressive evolutionary changes in organisms incorporated as fossils in stratigraphic sequences provide an important guide to geologic age. Faunal and floral succession, coupled with superposition, provide powerful tools in establishing the order of events when stratigraphic sequences in different regions are compared or correlated with each other'*¹⁴

*It is obvious to us today that the application of faunal and floral succession depends upon organic evolution. But prior to the time that evidence and convincing arguments on behalf of evolution had been advanced, the usefulness of fossils as guides or "indexes" to sequences of strata had already been demonstrated.*¹⁵

*'Organic evolution, thus, has provided progressive and continuing changes in fossil organisms through geologic time. Particular fossil organisms or assemblages of fossil organisms that lived during an interval in geologic time provide a means of establishing the age of the strata in which they occur relative to the age of other strata that contain fossils.'*¹⁶

'As correlation is attempted over greater and greater distances, physical evidence, except for radiometric age-dating, becomes progressively less reliable, and fossils become relatively more important. Of course, fossils are also useful for correlations over short distances. The use of fossils is based on progressive evolution through time. Thus, particular species of plants and animals may be good indexes of a certain

*interval of geologic time by virtue of having arisen by evolution early in the interval and having disappeared through extinction at the end of the interval. These progressive appearances and disappearances underlie the principle of faunal and floral succession, which, of course, is a simple and powerful concept in geology.'*¹⁷

At an International Geochronological Time Scale symposium held in Sydney, Australia, during August 1976, D. J. McLaren¹⁸ stated

*'It must not be forgotten that the sole means of establishing the directional aspects of life development is by collecting fossil remains from successions that allow their relative ages to be established. Positional relationships then, allow the succession of life to be ordered in a relative time scale, thereby allowing study of life development. Such development provides a valuable and sensitive means of setting up hypotheses of time correlation from place to place.'*¹⁹

Thus we observe from the previous statements that fossils are ordered or sequenced by evolutionary progression and succession. Time, according to the uniformitarians, is defined by what 'stage' life occurs by nature of the fossils found within the strata in question. But this is not the only way to age-date (or order/sequence) rocks. We are told that radiometric methods can provide an independent and confident means to determine the age of strata (outside the use of fossils). Can radiometric dating methods support Robinson's belief that fossils show a 'succession' which has nothing to do with evolutionary assumptions or the vastness of time?

Radiometric Versus Palaeontologic Dating of Rocks

Commonly we are told that fossils can only provide 'relative' dates because they span a wide range of time. Radiometric methods are suggested to

provide us with 'absolute' age dates (still defined by a range of time — but a shorter range). But this is another case where one is used to support another and **both** follow the evolutionary framework of the conceptualised uniformitarian stratigraphic column. In addressing this issue Berry has written:

*'The method of establishing and using time units from study of fossils may not appear as credible as the methods for reckoning the passage of time from radioactive decay of certain isotopes of elements in some minerals, but fossils are more readily available and the methods are, when correctly used, sound and reliable. They are the more precise and more practical in dating marine deposits, which comprise the majority of the rocks with which earth historians work.'*²⁰

We note from this last statement that fossils are preferred, at least in a marine setting, over radiometric dating when it comes to determining the age of the strata. Boggs further develops this concept where he states,

*'... calibration of the time scale [radiometric] by estimating ages of volcanic rocks associated with essentially contemporaneous sedimentary rocks that can be easily correlated by marine fossils is the most useful and reliable approach.'*²¹

Many more references could be added at this point which reflect the calibration of radiometric dates via palaeontology. However, we must press on. In their college textbook on palaeontology, Stearn and Carroll²² further define how fossils can be used to fine tune radiometric 'time' boundaries. They state:

*'By dating igneous rocks that are associated with sedimentary rocks bearing fossils characteristic of the various systems, geologists are now able to determine the ages of the boundaries between periods of the relative time scale.'*²³

We see that fossils are used to calibrate radiometric dates associated

with stratigraphic boundaries. Thus it would appear that fossils hold the key to establishing correct radiometric age dates. Because uniformitarians use fossils and radiometric dating methods to support their evolutionary assumptions, **both** should remain suspect for the purposes of developing and defining our model.

Extinction Events as Time Markers

In an effort to support his claims as to the acceptability of the uniformitarian stratigraphic column, and its accompanying palaeogeographic reconstruction of the Earth at the close of the Permian (along with the Permian crisis), Robinson states:

*'The factors commonly adduced in the search for explanations of the "Permian Crisis" are all relevant. This was the time when continents into which the original land had broken up during the Flood began to fuse together again, reducing or eliminating the shallow seas around the coasts. Everywhere the land was drying out.'*²⁴

Later still Robinson rejects the model suggested by a few creationists who pose the Mesozoic/Tertiary boundary for the Flood/post-Flood boundary by stating:

*'The sudden extinction of the dinosaurs and other animals at the end of the Cretaceous is a phenomenon for which the received Flood model has no explanation.'*²⁵

Robinson suggests that his interpretation could possibly explain this event as

*'... a partial explanation may be that dinosaur habitats, being located near coasts, where most vegetation was, were destroyed in the Cenomanian transgression along with the nesting grounds further inland.'*²⁶

So in one case (that is, the Permian Crisis) Robinson suggests that we accept the uniformitarian interpretation, and yet for another (that is, the Cretaceous extinction event) he suggests that no one knows the answer.

With these two examples Robinson shows his lack of understanding of how the conceptualised uniformitarian stratigraphic column and palaeogeographic maps were constructed and interpreted. McAlester has stated:

*'Not only are the origins of major groups concentrated in time, but so also are their ultimate fates, for the fossil record reveals that organisms have tended to die out simultaneously in relative sudden, world-wide extinctions. Furthermore, the times of extinction are often followed by periods of rapid evolutionary radiation, suggesting that the vacant environments left behind by extinct animals and plants provide an ideal setting for new evolutionary experimentation. The most dramatic extinctions are those, near the end of the Permian and Cretaceous Periods, that separate the Palaeozoic, Mesozoic, and Cainozoic Eras. As with evolutionary radiations, the causes of periodic extinctions are obscure. They are certainly related to environmental changes on the Earth's surface, but, as we resume our chronological survey of life history, it will become apparent that no single kind of change can satisfactorily account for the complex patterns of radiation and extinction found in the fossil record.'*²¹

The conceptualised uniformitarian/evolutionary stratigraphic column is built on extinction events and the alleged evolutionary progression of life. Robinson shows his tendency to selectively use the uniformitarian interpretation as he apparently picks and chooses his stratigraphic events to explain 'time' and 'life/death' within his model. In following this line of reasoning Robinson falls victim to the uniformitarians' interpretations driven by multiple extinction events, which clearly run counter to the young-earth Flood model. Our model suggests only one main terrestrial and marine extinction event, that is, the Flood. We are not forced (Scripturally) to have multiple mass-extinction events — so

why invoke them?

Fossils as Biostratigraphic Markers

Robinson has suggested that fossils fall into a relative order or succession (not based on evolution or vast amounts of time) which can be used within the Flood model. However, uniformitarians suggest that fossils are the key to age-dating and correlation of strata. Fossils are oriented in an evolutionary sequence within the conceptualised uniformitarian stratigraphic column. Hence, uniformitarian time is defined by evolutionary success of life as preserved by fossils. Thus, any attempt to use fossils and/or the stratigraphic units on more than just a local scale will suffer from the tenets of the uniformitarian paradigm.

Prothero has stated:

*'The evolution of organisms is the enabling factor, providing the progressive changes in species through time that makes biostratigraphy possible. Unlike any other means of correlation, biostratigraphy is based on the unique, sequential, nonrepeating appearance of fossils through time. The presence of a single fossil can often be used to determine the age of a rock very accurately. This is not true of the lithology of the rock, its magnetic polarity, its seismic velocity, or its isotopic composition; none of these are unique and cannot be used alone.'*²⁸

It should be very clear that despite all the methods available for dating and sequencing strata, the primary method within uniformitarian geology remains biostratigraphy (that is, dating by fossils). Hence, to invoke uniformitarian palaeontology and stratigraphy to explain the biblical record of Earth history is to deny the fundamental principles of one (that is, uniformitarianism) and to compromise the other (that is, the Scriptural record).

Conclusions

The conceptualised uniformitarian stratigraphic time/rock record is

based on the evolutionary succession of life (that is, biostratigraphy), contrary to what Robinson (and others) would have us to believe. The dating and sequencing of strata is based on the evolution of life as portrayed by fossils. Lemon has stated:

*'. . . stratigraphy, as a study separate from that of sedimentology, is concerned particularly with the passage of time. It is especially important that time is measured in a way that can be linked directly with the sedimentary record itself. Only fossils can provide the means of doing this.'*²⁹

The question remains — 'how can the young-Earth Flood model accommodate a system totally designed around the evolutionary succession of life and still explain a single global Flood event?' My answer is to reject the uniformitarian paradigm of vast amounts of time and the associated evolution of life, and change the framework and aspect from which we define Earth history to the biblical approach. Let us acknowledge the existence of 'many' stratigraphic columns and let us work to redefine them without following the evolutionary assumptions or order of the conceptualised uniformitarian stratigraphic column. We need to re-examine the rock record and define it within the energy-effect relationship of the Flood,^{30,31} and not succumb to the uniformitarian assumptions of evolutionary biology as suggested by the uniformitarian stratigraphic column. What I am suggesting here is not new. Rather, my work simply follows what others such as Gish,³² Woodmorappe,³³ and Morris³⁴ have already proposed. These gentlemen (along with others) have previously suggested that fossils, as defined within the framework of the conceptualised uniformitarian stratigraphic column, do not support any means of defining 'time' from a biblical perspective.

Robinson reveals a lack of understanding in how strata are defined using the conceptualised uniform-

itarian stratigraphic column. Additionally, the works of others espousing a different Flood-related 'boundary' interpretation, yet following the same conceptual uniformitarian stratigraphic column, suffer the same fate. None successfully weld the biblical record with the generalised uniformitarian stratigraphic column — and they **never** will. To accept the conceptual global uniformitarian stratigraphic column is to accept evolution — please prove to me otherwise (take it for the challenge that it is). To continue attempting to resolve the biblical record of time within this manner is a waste of valuable time, publication space, and resources. This strategy will only serve to continue to confuse people who are trying to define the Flood of Genesis with the physical rock record found at any specific site. Let us re-examine what the Bible says, and then look at outcrops and well cores in an attempt to understand how sediments would have been deposited within this framework. Multiple catastrophes are not the answer. The Flood was a single global event which resulted in the deposition of the majority of our present stratigraphic section — let us get out into the field and start interpreting what the Flood did to shape those strata sequences.

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The Editor comments ...

Global stratigraphic interpretation of the physical rock record within the framework of the young-Earth Flood model is perhaps our biggest challenge, potentially made all the more difficult by the misunderstandings that exist. Lest readers have been inadvertently given the wrong impression, our colleague Carl Froede is **not** accusing me, Robinson or others of either compromise with uniformitarianism and evolution, or with abandonment of the young Earth creationist position. We all agree that the global stratigraphic record should be defined along biblical guidelines, and that fossils, as presented within the framework of the geological column abstraction of conventional geology, do not define either time or a progression of life from a biblical perspective.

For clarification, I refer readers to the recently published statement on 'the geological record'¹ that should remove any misunderstandings. In particular, I would highlight that the concept of the geological column (what Froede also calls the uniformitarian stratigraphic column) is an abstraction based on the bringing together of a number of separate concepts. The raw data are the rock layers themselves and include the fossils contained in them. From this data of the physical rock record early catastrophist geologists recognised a global succession of rock types that they encapsulated in the concept of a lithostratigraphic column. Within the global succession of rock types are the contained fossils, so this fact automatically leads to recognition of global successions of fossils that can be represented by the concept of biostratigraphic columns.

These two concepts, the lithostratigraphic and biostratigraphic columns, are best understood within a localised region — for example, the Grand Canyon area of northern Arizona (USA). There we can literally walk down, then up, the succession of rock types in the walls of the canyon, and so we represent those rock layers in a lithostratigraphic column or

diagrammatic summary of the regional physical rock record. Furthermore, upon closer examination of these rock layers exposed in the canyon walls, we find different fossils in each rock layer — for example, trilobites in the Tapeats Sandstone near the bottom of the canyon, nautiloids in the Redwall Limestone halfway up the canyon walls, and vertebrate footprints in the Coconino Sandstone below the canyon rim. As these fossils are contained within a succession of rock types/layers, they therefore occur as a succession of fossils which we can then represent diagrammatically as a biostratigraphic column. Note that both these lithostratigraphic and biostratigraphic columns do not of themselves automatically imply, or include built into them, any notion whatsoever of uniformitarian evolutionary development of the rock layers/fossils. They are purely descriptive devices that summarise what is physically in the ground. Uniformitarian and evolutionary interpretations are then **imposed upon** the rocks and fossils respectively by those who have those biases and framework of belief.

Thus far we would all agree. The difficulties for all of us arise when we start comparing the physical rock record and the contained fossils in one region with the physical rock records and the contained fossils in other regions in order to build a global model for the development of the Earth's crust and surface topography within the biblical framework, particularly the Flood. We all reject the uniformitarian paradigm of vast amounts of time and the associated evolution of life, Robinson included. However, some of us are convinced that the global lithostratigraphic column does have some usefulness, and therefore validity, as a starting point in our quest, and we are **very** aware of the pitfalls emphasised by Froede that need to be avoided.

Will Froede deny that we don't find fossilised human and dinosaur bones buried together, or fossilised trilobite and amphibian remains together? And

why do we only find komatiites, banded iron formations, phosphorites, black shales, and chinks, etc. at certain levels in the physical rock records in some places, and not in other places or at other levels? These are the realities of the fossil and rock records that we (creationist geologists) need to be able to explain with our Flood model — they are not contrivances of evolutionary and uniformitarian interpretative constructions. By all means let us get out into the field to re-examine the outcrops and well cores (most of which are already well documented), but how does Froede propose to correlate rocks and fossils from region to region to build the long-awaited synthesis according to Flood geology? Energy-effect relationships.²³ However, these wax and wane, as seen in the physical rock record from region to region, and are even repetitive in some regions. Since these relationships are deduced from the rock strata themselves, as Froede and his colleagues have explained, why not stick with correlating rock strata? The resultant lithostratigraphic column provides abundant evidence of global-scale features, which would have been produced by global processes — exactly what we would expect from the global Genesis Flood.

By all means, our colleague Carl Froede and others have the freedom to build their Flood models on whatever geological basis he and they see fit. However, it serves no useful purpose to obstruct the efforts of those building their Flood model on a different basis by casting doubts on their integrity or by sowing seeds of misunderstanding. No compromise with the 'conceptualised uniformitarian stratigraphic column', the uniformitarian paradigm, the evolutionary assumptions or order of life, or their associated vast amounts of time, is being made either wittingly or unwittingly by myself, Robinson or our colleagues, however it may appear to Froede. The acid test will be who first produces the desired synthesis, with a Flood model which fits the raw data of the physical rock and fossil records and is therefore robust enough

to deal with the questions that vex us and draw sceptical comment. That's the most appropriate challenge for all of us.

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THE BIBLICAL RECORD AND THE GEOLOGICAL RECORD

Dear Editor,

The fascinating debate in recent issues of the *CEN Technical Journal* on the Flood/post-Flood boundary in the geological record has shown the difficulties that the two creationist schools of thought, as well as the evolutionists, have with the geological column.

Resolving the debate will depend on three elements:

- (a) determining the reliability of the geological record;
- (b) interpreting that record; and
- (c) careful interpretation of the pertinent biblical record.

Ideally, (a) should be on grounds of internal consistency and the empirical evidence of the geological column, whereas (b) must rest substantially on (c).

Notwithstanding the detailed and sophisticated analysis undertaken in terms of (a) and (b), the underlying issue between the two creationist schools has been posed as a simple choice:

- (a) either the geological record was substantially laid down in the Flood period (Genesis 7-8), and

thus, there is a late boundary to material from the Flood in the record; or

- (b) some significant part of the record was laid down after the Flood (based on Genesis 10:25), and thus, there is an early boundary to material from the Flood in the record.

Yet, if we focus on (c), I suggest that the biblical record indicates at least two other possible episodes where significant elements of the geological column may have been laid down, subsequent to the creation *ex nihilo*. For both episodes (unlike Genesis 10:25), the Bible provides both an indication of the episode and of the cause, whilst the mechanism to put the episode into effect can be deduced from scientific knowledge.

The **first** possible episode is in Creation Week. It is indicated by the presence in the Garden of Eden of gold, onyx and, possibly, precious stones (Genesis 2:12; Ezekiel 28:13-14). Where did they come from?

Such items are found in igneous or metamorphic rock (gold would scarcely have time to gather in alluvial deposits). Thus, their presence speaks of a previous geological disturbance. The likely cause of such a disturbance is the creation of the heavenly bodies on the fourth day with their associated gravitational forces. Indeed, it would be surprising if there was not some disturbance from such a cause.

In Ezekiel 28:14, the Lord God says to Satan, 'You were on the holy mountain of God; You walked back and forth in the midst of the fiery stones.' If this refers to a location in or near the Garden of Eden, as the previous verse does (and a natural reading would suggest), the fiery status of the stones may refer to their recent volcanic origins and that they were literally hot.

Walker¹ argues that volcanic eruption in Creation Week would throw up dust which would be unlikely to '*clear in time ready for the creation of birds, animals and people within a few days*'. However, we do not know the atmospheric conditions of the time and

the Earth may not immediately have settled into a 24-hour rotation period in relation to the Sun. (This is not to try and introduce the day-age hypothesis.) Walker also argues that such disturbance would not be 'good' for the atmosphere etc., whilst God had labelled each step of His creation 'good'. However, human judgment as to what is 'good' often errs and we should not impose a sort of stasis on God: that which is good cannot be changed. Genesis 2:12 illustrates God's bounty towards us.

If volcanic and/or other geological disturbances did occur in consequence of the creation of the heavenly bodies on the fourth day of Creation Week, the results would likely be worldwide and could, conceivably, contain plant fossils, as plants were created on the Third Day. As death — a spiritual force — entered the world through sin (Roman 5:12), the possibility of plant destruction prior to the Fall depends on what is defined as death in the Bible. As the animals created on the Fifth and Sixth Days would be hungry and liable to eat the vegetation before the Fall — with attendant risks of plant destruction — it is possible that plants are not defined as subject to death in biblical terms.

The **second** possible episode follows the expulsion from the Garden of Eden:

'So He drove out the man; and He placed cherubim at the east of the garden of Eden and a flaming sword which turned every way, to guard the way to the tree of life.' (Genesis 3:24)

What is the flaming sword?

The flaming sword which turned every way to guard the way may have consisted materially of volcanic activity. The Bible provides instances of the Earth reacting physically against sin (Isaiah 24:20, Leviticus 8:25) and of God and His angels physically shaking etc. the Earth in consequence of sin (II Samuel 22:14-16; Isaiah 5:25; 13:13; 24:1; 29:6; Jeremiah 4:24-26). Does not Romans 8:19-22 tell us that creation was subject to futility, bondage and corruption because of