

the common Semitic x//x+ 1 formula.

On the point of the use of 'evening and morning', Helweg's original article seems to have suggested that the use of the terms in Daniel 8:26 supported its use in Genesis as other than 24-hour periods. My original point was that the use in Daniel 8:14 (an antecedent reference to Daniel 8:26) as actual 24-hour days seems to point to the use of 'evening and morning' as 24-hour days in Daniel 8:26. In his response to my article, he states:

I would further argue that my thesis is strengthened precisely because the Daniel 8:26 passage does refer to Daniel 8:14 where the phrase is prefixed by 2300. That is, the phrase may refer to 24-hour days or a long period of 24-hour days.'

I have to admit to some confusion here, since I am not sure what he means by 'evening and morning' referring to a 'long period of 24-hour days'. My original point had been that Daniel 8:26

'cannot be used to argue against the meaning of a 24-hour day for "evening and morning" in Genesis 1.'

Another point which I should like to make about Helweg's response is that he seems to have claimed in the next-to-last paragraph to have superior cultural experience:

'Having lived in the Middle East for over 10 years, I can see, perhaps better than most, that we, in the "West" tend to read the Bible from our narrow cultural perspective. It is one thing to study the Greek and Hebrew languages, but it is quite another to understand the culture in which these words were given.'

I seriously doubt that the culture of the Middle East today is the same as the culture of the time of Moses. The study of ancient cultures with the ancient languages will lead to a better understanding of the original intention of the author than will the life experience of one with many years in the modern culture of the same region.

On the final point, that of the

simple meaning of Scripture, I agree with Dr Helweg's appeal to II Timothy 2:15. However, it is amazing to me that every other term of Genesis 1 is understood simply by both progressive creationists and by young-Earthers. Why is day to be reinterpreted when other terms such as Sun, Moon, stars, months, years, seasons, sea, dry land, birds, beasts, and man are not?

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FOOTNOTE

1. My original quote at this point was: *'Similar constructions are found in Genesis 2:17, 3:5, 5:1, 5:2, 21:8, 35:3; and Exodus 10:28 to name a few. English versions will vary between "in the day" and "when " in these instances. To negate the meaning of yôm as a 24-hour day in chapter 1 using b'yôm in Genesis 2:4 is at best an imprecise argument.'*

THE FLOOD/POST-FLOOD BOUNDARY

Dear Editor,

I thank Mr Johnston for reading through my lengthy paper¹ on the Flood/post-Flood boundary and his acknowledgment that the detailed analysis and modelling exercises I provide are a *tour de force*.² I am also pleased that he, who has been involved with statistical analysis and mathematical modelling, did not cite one mathematical error³ or correct one of my quantitative evaluations.

At the close of my paper I stated *'the thoughts of readers with insight into alternate interpretations with quantitative assessments of the evidences are invited'*.

Unfortunately, Mr Johnston did not provide one quantitative assessment. His critique is lacking in the use of numbers. No comparison with written records and ice core records was attempted. He provided no study of

the climatic impact of post-Flood catastrophism. He made no attempt to test his own assumptions or the model he advocates. When I subject his criticisms to detailed analysis and quantitatively evaluate them I can find no substance.

Assumptions and Catastrophism

Perhaps I did not make my motivation clear enough in the paper. At the beginning of my research I was not committed to any particular stratigraphic location in the geologic column for the Flood/post-Flood boundary. I only wanted to determine rigorously where the boundary was located no matter what the answer might be, I did lean toward a K/T boundary but was not committed to it. During my research I changed my mind because of the weight of the evidence. The conclusion that the boundary is in the mid to late Pleistocene is based solely on the united consensus of numerous evidences of global proportions and supported by strong Biblical constraints. Even now, I have no personal attachment to the mid-Pleistocene placement of the boundary advocated in my paper. However, I do have attachment to testing hypotheses and subjecting them to careful scrutiny and quantitative analysis.

The assumptions in my analysis and modelling were the Biblical record, other historical records, a post-Flood Ice Age and its ice core records, and the geological record (all interpreted within a global Genesis Flood and young Earth paradigm). Maximising catastrophism within these constraints was discussed at length in my paper and is summarised for the readers in a section below. If I could have honestly invoked a greater level of catastrophism I would have.

Unfortunately, Mr Johnston in expressing his dissatisfaction with my 'assumptions' confuses assumptions with conclusions. The Biblical accounts, historical accounts, geological record — the Holocene, and ice core records (which are the

assumptions) all indicate very little global catastrophism since the end of the Ice Age (the conclusion). The Biblical accounts, geological record, and ice core records (the assumptions) also indicate only a small amount of global catastrophism after Noah and his descendants arrived in the plain of Shinar and during most of the Ice Age (a conclusion). Therefore the only gap available to insert massive catastrophism is into the time between the Flood and the beginning of the ice core records and before the time Noah and his descendants arrived in the plain of Shinar (a conclusion). Only so much catastrophism can be forced into this time interval. This will be discussed quantitatively in a section below.

It seems to be the conclusions, not the assumptions *per se*, that Mr Johnston questions. For he states

'proponents of the pre-Permian boundary, such as the authors of the other papers, clearly envisage post-Flood geological activity on such a large scale that makes Holt's uniformitarian assumptions unreasonable'.⁴

The ability to '*clearly envisage*' is not a reliable scientific criterion for determining if assumptions and conclusions are or are not reasonable. Apparently then, the real reason he objects to my conclusions (and thus assumptions) is that they show a pre-Permian boundary for the end of the Flood to be incompatible with the geological record and the Biblical record.

Mr Johnston offers his own assumptions consisting of a few illustrations of post-Flood catastrophism according to a 'pre-Permian' model or boundary for the Flood.⁵ If Mr Johnston would have tested his own hypothesis and assumptions possibly he would have realised the inadequacy of his assumptions and their incompatibility with the written and geophysical records. He also might have realised that his assumptions and explanations were either explicitly addressed or encompassed by the maximum plausible catastrophism

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modelled in my paper.⁶

Mr Johnston seems to avoid all the historical data, detailed analysis, and modelling I present by not really addressing the issues. He contends that

'with the limited state of knowledge about the historic conditions (of the past) mathematical modelling cannot yet play much of a role, in discrimination between the competing theories'.⁷

This position is unfounded on three major points. First, he has ignored the history of the Earth recorded in Scripture and extra-Biblical sources. Second, he has ignored the record of limited global volcanism and atmospheric debris as recorded in numerous Antarctic and Greenland ice cores. Third, he denies that modelling the worst conceivable post-Flood catastrophic conditions, consistent with the evidence, can play much of a role in discriminating between competing theories or models. Each of these points were discussed at length in my paper.

Mr Johnston is incorrect when he claims that there is a wide range of possible assumptions that can be made about models (that is, the Flood, the post-Flood climate, and the concurrent geological events).⁸ When rigorous quantitative analysis as I presented is applied to the maximum conceivable catastrophic post-Flood climatic conditions, the range of plausible assumptions is reduced to two:-

- (1) either the Earth is young and the Flood/post-Flood boundary is very late in the geologic column, or
- (2) the Bible has an incredible gap in its historic record and the Earth is much older than 6,000 years.

I choose the former as being consistent with Scripture, the geological record, and quantitative modelling of a catastrophic post-Flood world. If Mr Johnston or anyone else can provide detailed quantitative analysis showing how vastly more post-Flood catastrophism than I have modelled can fit into a short post-Flood time-frame, and remain consistent with the

Biblical, historical and geologic evidence, I ask them to do so.

The Importance of Modelling

My emphasis on details, quantitative analysis, and modelling is intentional (as that is the substance of my paper), because such analysis is the easiest to test. I do invite careful scrutiny of my paper because that is the best way scientists can test their hypothesis and analysis and thus separate good models from erroneous ones.

Prior to my paper the published evidence for the Flood/post-Flood boundary had not been conclusive, and there had been a wide divergence of opinion in interpreting the evidence. This is because of

- (a) the absence of quantitative assessments of the geophysical activity associated with the placement of the boundary — that is, the maximum plausible post-Flood catastrophism, and
- (b) the absence of tying the geologic boundary directly to specific locations identified in the Scriptural account — that is, the Mountains of Ararat and the plain of Shinar.

The purpose of my paper was to present more definitive evidence for the geologic location of the Flood/post-Flood boundary by providing the needed quantitative assessments and tying the boundary to geographical locations mentioned in Scripture.

My paper provided detailed analysis and extensive catastrophic modelling for the following evidences:

- (1) global sediment and post-Flood erosion,
- (2) volcanism and climatic impact,
- (3) changes in the global sea level (including the impact on the plain of Shinar and God's promise about not sending another global Flood),
- (4) the formation of the mountains of Ararat (Biblical plural, not singular), and
- (5) the growth, burial, and formation of fossil fuels and organic carbon.

The conclusion of each of these evidences is that the Flood/post-Flood

boundary is in the mid to late Pleistocene. The weight of these evidences cannot be ignored and has already prompted some who published support for an earlier placement of the boundary to change their opinion.⁹

The Results of Modelling

Since modelling can and should play a vital role in testing Flood boundary hypotheses, let's look at my results and compare them with what modelling shows for the model Mr Johnston advocates — a 'pre-Permian' location for the Flood/post-Flood boundary. As background we need to recall, as demonstrated in my paper, that the plain of Shinar where Noah and his descendants came to dwell (Genesis 11:2) is underlain by thick Palaeozoic, Mesozoic and Cainozoic strata. These strata and their global counterparts (and perhaps much of the Precambrian) were deposited either during or after the Flood, but before Noah and his descendants arrived in the plain of Shinar. The pre-Permian model for the Flood boundary postulates that the Permian, Mesozoic, and Cainozoic are post-Flood strata; therefore the model requires that all the Permian, the Mesozoic, and the vast majority of Cainozoic strata were deposited between the end of the Flood and the earliest dwelling in the land of Shinar.

Noah and his descendants came to the land of Shinar before the building of the tower of Babel and the dividing of the land in the days of Peleg (Genesis 10:25; 11:1-9). Peleg lived between 101 and 310 years after the Flood, taking the genealogies as complete between Shem and Peleg (Genesis 11:10-19). For modelling purposes I'll give more than the maximum plausible time and assume that Noah and his descendants arrived in the plain of Shinar 400 years after the Flood, even though the actual time had to be shorter.

From these few Biblical constraints and geologic observations consistent with the model Mr Johnston advocates, the following important observations can be made. The

modelling I use herein follows the detailed analysis given in my paper which maximises the post-Flood catastrophism.

- (1) Quantitative analysis demonstrates that the maximum amount of sediment carried to the sea after the Flood (occurring over about the last 4,500 years) is 1.1×10^{21} g (see errata, this issue of **CEN Tech. J.**). In contrast, the pre-Permian model requires about 710×10^{21} g of sediment to be carried to the sea in only 400 years, ignoring all subducted sediment which would increase the needed amount. This is over 600 times greater than the upper post-Flood limit over the course of 4,500 years and represents an annual erosion rate nearly 90,000 times the present value. This requires an erosion rate hundreds of times greater than the maximum value I modelled. If an error of this magnitude exists in my analysis it should be easy to discover. If Mr Johnston or anyone else can find the error in my assessment they should identify it. To support the model he advocates he should also provide a quantitative explanation for such a massive rate of erosion consistent with the Biblical, historical, and geophysical constraints that follow.
- (2) A near lethal level of post-Flood subaerial volcanism would reduce the sunlight level on the surface of the Earth near the limit of photosynthesis. In any model this level of continuous volcanism over a duration of 700 years immediately after the Flood would have to have produced the observed 280×10^{19} g of subaerial volcanics. (See my paper for the details on the 700 year constraint imposed by the ice core and Biblical records. The duration may have actually been less than 300 years.) This level is no doubt a great exaggeration, as this near lethal level (if not lethal) is so severe that it would prevent the ripening and harvesting of all

crops and fruits on the Earth. Man and animals would not survive. Darkness would cover the Earth. A more probable post-Flood volcanism would require less than 28×10^{19} g of subaerial volcanics to be consistent with volcanic records in ice cores, the Biblical and historical accounts of weather conditions, and the need for fruit and crop ripening for man and animal survival.

In the pre-Permian model the post-Flood subaerial volcanics need to be even greater: $4,700 \times 10^{19}$ g to agree with the amount of volcanics found in the postulated post-Flood strata, that is, Permian and higher strata. (This estimate ignores reworking of continental sediments which would obscure the presence of even more post-Flood volcanics.) Consequently over 16 times the near lethal level and over 160 times the maximum reasonable level of post-Flood subaerial volcanics is needed in the model Mr Johnston advocates, if spread out over 700 years. Compressing the majority of this volcanic activity to 400 years or less to conform to the geological implications for the plain of Shinar requires nearly 30 times the lethal level of volcanics and nearly 300 times the reasonable level of post-Flood subaerial volcanics. If an error of this magnitude exists in my analysis it should be easy to discover and Mr Johnston should identify it. To support the model he advocates he should provide a quantitative explanation for such massive volcanism consistent with the Biblical records, historical records, ice core records, and geophysical constraints.

All the mountains in a region that more than encompasses all mountains historically associated with the Mountains of Ararat are shown in Figure 1. These mountains were formed in the Tertiary and reached their maximum height in the Pliocene or Pleistocene. The geology of all

these mountains indicates that the day Noah and the animals left the Ark was late in the Cainozoic and most likely in the mid to late Pleistocene. Mr Johnstone rejects the notion of the Mountains of Ararat being in this area and yet does not identify where these mountains were or are.¹⁰ By rejecting these evidences Mr Johnston is asking the readers, *a priori*, to assume that the geology of these unidentified or unknown mountains agree with his model.

(4) The boundary of the sea discussed in my paper is based on a straight forward reading of Psalm 104: 6-9, Jeremiah 5:22, Isaiah 54:9, and Genesis 8:13—14 and 21-22; 9:11-16.¹¹ Herein I take the clearest meaning of Scripture and use Scripture to guide my understanding of the history of the post-Flood sea-level and for placing constraints on Flood models. In contrast, Mr Johnston rejects the statements as well as the concept presented in Scripture that there is a bounds to which historic post-Flood and future sea-level variations are constrained. One could quibble about the precise level of the boundary, but a boundary hundreds of metres above the present sea-level, as the pre-Permian model requires, makes these Scriptures meaningless to Noah's descendants living in the plain of Shinar. It appears that Mr Johnston is using his understanding of geology and his Flood-model paradigm to dictate his understanding and exegesis of Scripture. This approach tends to elevate geophysical interpretations above that of Scripture and consequently will blind one to the insightful details recorded in Scripture and cause us to miss clues to improving and testing our Flood models. Ultimately this can

lead us to invoke multiple massive global catastrophes and reject the plain teaching of Scripture, as Dr Henry Morris has recently warned.¹²

(5) Sea level variations indicated by (a) sequence stratigraphy, and (b) area-elevation analysis and fossil content, show that as a minimum the vast majority of the Earth was covered by ocean through much of the late Mesozoic and early Cainozoic, as well as the Palaeozoic. The sea-level may have been much higher, as these methods only tell us the minimum level of the sea. I cited examples of supposedly subaerial strata that have been re-examined only to show that the strata were

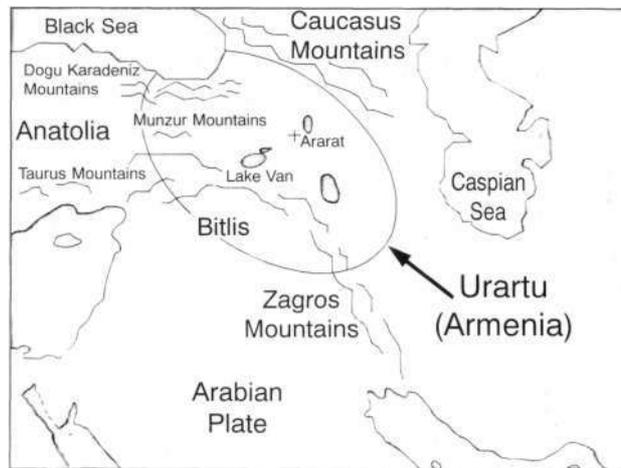


Figure 1. The land of Urartu or ancient Armenia.

really submarine strata. No doubt many strata have been incorrectly described as subaerial and the sea-level was indeed higher than that indicated by the eustatic curves I cited. This was explained in my paper. Mr Johnston has incorrectly assumed the sea-level was no higher than that shown in the eustatic curves.¹³ Thus his conclusions are mistaken.

(6) The plain of Shinar has a maximum elevation of 37 m and was below sea level, except perhaps for brief excursions, until after the late Pliocene according to the sea-level curves. The lower

half of the plain of Shinar was below sea level, except perhaps for brief excursions, until after the mid-Pleistocene. As mentioned in my paper, it may be that these presumed excursions were only a change in the direction of Flood water currents and associated sediment deposition in these areas rather than actual sea-level change. The stratigraphy of Iraq, like the sea-level curves, indicates that the 'plain in the land of Shinar' was a part of the ocean until after the Miocene. Noah's descendants could not have dwelt in the plain of Shinar until the Pliocene or Pleistocene. More detailed analysis of the deposits in the plain of Shinar is needed to refine our understanding. Mr Johnston advocates a model that

(a) requires the Permian, entire Mesozoic and vast majority of the Cainozoic be eroded from the Palaeozoic Flood deposits and redeposited between the short time Noah left his Ark and he and his descendants reached the plain of Shinar, and

(b) requires at least two enormous floods of global proportions — the Flood of Genesis to account for the Palaeozoic and another flood, unrecorded in Scripture, to account for the apparent peak sea-level in the late Mesozoic.

Furthermore the hypothetical two global floods advocated by Mr Johnston and others must be separated by a non-trivial amount of time for animals to multiply and refill the Earth to become fossils found throughout the Earth in the Mesozoic and Cainozoic strata. Fulfilling all these requirements is as geologically profound, even miraculous, as the Flood itself, all the while making God's promise about not sending another global Flood upon the Earth meaningless.

(7) According to the data presented in my paper the maximum amount of

fossil fuels and organic carbon that can be produced after the Flood is 0.89 per cent of the Phanerozoic total. This supports the placement of the Flood/post-Flood boundary after the middle Pleistocene. In contrast the model Mr Johnston advocates

(a) requires the post-Flood world to produce 57 per cent of the total organic carbon in the Phanerozoic, and

(b) requires the post-Flood world to be more effective in producing fossil fuels than the Genesis Flood (that is, produce over 70 per cent of the world's coal, over 80 per cent of the oil, over 93 per cent of the heavy oil and tar sands, and over 59 per cent of the natural gas). The pre-Permian model requires compressing production of this much organic carbon and fossil fuels into less than 400 years right after the Flood (to be consistent with the stratigraphy of Shinar and to precede the coming Ice Age). This requires the post-Flood world to be more than four times as biologically productive (net primary productivity) as the created, but fallen, pre-Flood world which lasted over 1,600 years. Mr Johnston provides no quantitative analysis showing where my modelling or assumptions are incorrect and how this much organic material could grow and be suitably buried during the first 400 years or less after the Flood. In particular, advocates of the pre-Permian model must **quantitatively** show how a high level of primary productivity can be sustained while the Earth's climate is continuously dominated by massive volcanism that, by blocking out the Sun, would greatly reduce or eliminate all photosynthesis. If Mr Johnston can show all how this is possible and consistent with the Biblical and geophysical evidence, he should do so.

The above is just a brief summary of the detailed analysis and modelling

results that can be found in my paper. The evidence for a late Cainozoic Flood/post-Flood boundary is powerful and compelling. In contrast, when the pre-Permian hypothesis is tested it is found to be unable to account for the geophysical record and incompatible with the Biblical account. If Mr Johnston and other advocates for the pre-Permian model can **quantitatively** account for their postulated tremendous levels of post-Flood catastrophism while remaining compatible with the Biblical account and geophysical record, they should do so.

The pre-Flood/Flood Boundary

In numerical modelling I took the beginning of the Flood coincident with beginning at the Cambrian as a 'straw man'. This was for simplicity, nothing else. I stated that most creationists agree the Flood/pre-Flood boundary is 'at or below',¹⁴ not at the beginning of the Phanerozoic as Mr Johnston incorrectly suggested. Placing the pre-Flood/Flood boundary lower in the geological column does not change any of my quantitative assessments of post-Flood climatic or geologic activity, neither does it change the plausible placement of the Flood/post-Flood boundary, as I will show below.

Relative Scale of Flood and post-Flood Deposits

Mr Johnston, without any quantitative evaluation, claims¹⁵ that

- (1) *'Precambrian deposits are far larger in scale . . . than the relatively more modest deposits of the post Carboniferous period'* and that
- (2) *'an increasing number of creationists believe that the vast quantities of the massively thick, world-wide, Precambrian deposits were largely, if not entirely deposited during the Flood. This change of assumption, on its own, completely changes the balance between the Flood and post-Flood deposits without any other considerations.'*

He goes on to claim this is supposed

to make the **Flood** 'more terrifying'. Since all the data was available in my paper, let's check his claims and see

- (1) how vast the Precambrian is,
- (2) to what extent the balance of deposits changes, and
- (3) if his claims about making the **Flood** 'more terrifying' have any validity.

There are $2,300 \times 10^{21}$ g of Phanerozoic sediment and 526×10^{21} g of Precambrian sediment. The total mass of the post-Carboniferous sediments is $1,570 \times 10^{21}$ g. The Precambrian deposits are only one third the size of the post-Carboniferous deposits. The claim of the 'larger' size of the Precambrian and the 'more modest' size of the post-Carboniferous is incorrect. The Precambrian deposits are significantly smaller, not 'far larger', than the post-Carboniferous deposits.

With the same data we can calculate the ratio, in the pre-Permian model, of the post-Flood reworked deposits to the original Flood deposits; the ratio is then 56 per cent. How significantly does this change my published estimate of 62 per cent?¹⁶ Obviously not a whole lot.¹⁷

Mr Johnston went on to state that *'a large portion of the Mesozoic deposits are reworked Palaeozoic deposits and Tertiary deposits are mainly reworked Mesozoic and Palaeozoic.'*¹⁸

This requires repeated reworking of post-Flood deposits in the pre-Permian model. Following this suggestion one may assume that at least half of the Tertiary deposits are reworked Mesozoic deposits and then calculate the new ratio. The ratio of total mass of sediment reworked after the Flood to Flood deposits mass increases to 66 per cent. This is greater than my original estimate of 62 per cent. Mr Johnson's own assumptions make the pre-Permian model slightly more untenable than I had suggested. Another claim is shown to be incorrect.

Do these changes make the Flood more terrifying? Obviously not. Again, his claim is incorrect. Rather, Mr Johnston's assumptions makes the

post-Flood time incredibly terrifying! This leaves one wondering how anyone or anything survived his postulated post-Flood catastrophism without divine intervention or divine recording of such global cataclysm(s).

My discussion of the relative scale of Flood and post-Flood deposits can be refined even more, but it is hardly worth the effort. No matter what one wants to assume about what is and is not reworked strata, there is a limit to the total amount of sediment that can be moved in a few hundred or even a few thousand years after the Flood. I demonstrated quantitatively that a maximum of 1.1×10^{21} g sediment could be eroded to the oceans in post-Flood time. Mr Johnston postulates moving in less than 400 years more than 600 times as much sediment to the ocean and repeatedly reworking over 1,400 times as much sediment on land. In addition, he postulates this incredible amount of erosion without identifying a mechanism or testing to see if the unknown or unidentified mechanism has the capability to rapidly move such masses of sediment — all the while maintaining consistency with the Biblical time limits, written records of climatic conditions, ice core records, the concurrent Ice Age, need for animals to successfully refill the Earth, the need (and capacity) to grow massive amounts of vegetation to produce enormous fossil fuel deposits and organic carbon content of sediment, erosion to bury these deposits, changing sea levels, and the Biblical account of a plain existing in the land of Shinar rather than an ocean or swamp. These are details that cannot be ignored. If Mr Johnston or other advocates of the pre-Permian model can quantitatively account for all these different evidences they should do so.

The Fossil Record and the Erodeozoic

Mr Johnston's strongest concern appears to be with the fossil record which was not the subject of my paper. I deliberately choose to avoid the fossil record as a major point in my paper,

since interpretation of the fossil record is very subjective.

Mr Johnston is welcome to differ with my suggestion for Erodeozoic strata. I thank him for considering them. However, he is misleading the readers when he provides an incomplete quotation and claims I admit there is '*no continental record*' for the Erodeozoic.¹⁹ I said,

*'we have no continental record of these sediments or they have been misidentified.'*²⁰

I also proposed that if these sediments are still intact (not reworked) we would expect these layers could be found in enclosed basins where they would not have been lost by erosion.

It is interesting that Mr Johnston unknowingly implies his own need for multiple Erodeozoic-like strata when he states

*'that a large proportion of the Mesozoic deposits are reworked Palaeozoic deposits, and that the Tertiary deposits are mainly reworked Mesozoic and Palaeozoic.'*²¹

The Permian would also have to be reworked Palaeozoic deposits in the model he advocates. This implies that the fossil record of the upper majority of the original Palaeozoic has been lost (Palaeo-Erodeozoic strata), and the fossil record of the upper half of the original Mesozoic has also been lost (Meso-Erodeozoic strata). Quantitatively, within the pre-Permian model, the original Palaeozoic was over three times the mass we observe today and the original Mesozoic was over 1.7 times the mass we observe today. (This ignores all subducted sediment which would increase the estimates of the original mass.) No doubt a more detailed examination of the pre-Permian model would require even more Erodeozoic-like strata throughout the Mesozoic and Cainozoic.

It is inconsistent to contend that the Genesis Flood waters deposited enormous amounts of sediment on continents world-wide in 150 days and then contend that the roughly 150 days of receding of those same Flood waters

eroded little sediment off the continents. I suspect there are significant clues to unravelling the fossil record in the erosion after the 150th day of the Flood, that is, the erosion of the Erodeozoic strata.

Pre-Flood Terrestrial Life: 'Wipe Off' not 'Blot Out'

Mr Johnston and others seem to place a great emphasis on a misleading translation of Genesis 6:7 and 7:4. They emphasise the 'blotting out' in Genesis 6:7 NASB of pre-Flood terrestrial life and interpret it as '*without leaving any trace whatsoever*'.²² However, the Hebrew word *maha* used in Genesis 6:7 is the same as that used when speaking of someone wiping clean as in washing dishes. This Hebrew word for 'wipe' is also used in 2 Kings 21:13 and Isaiah 25:8 where the wiping intent is apparent. A better translation of Genesis 6:7 is provided by the New King James Version which reads 'And Jehovah said, I will wipe off man whom I have created, from the face of the earth, from man to beast, to the creeping thing and to the fowl of the heavens; for I regret that I made them'. As debris is wiped off dishes into the water below, so man, beast, and fowl were wiped off the face of the pre-Flood Earth and deposited in the sediment carried by the Flood waters. The fossilised remains of pre-Flood animals and plants are then tangible reminders of the Flood and of the severity and reality of God's judgment.

The **Theological Wordbook of the Old Testament** says regarding the Hebrew word *maha*,

*'Note that erasures in ancient leather scrolls were made by washing or sponging off the ink rather than blotting. "Wipe out" is therefore more accurate for the idea of expunge.'*²³

The idea of 'blotting out' given by the NASB and interpreted by Mr Johnston and others as meaning 'without leaving any trace whatsoever' is not found in the Hebrew and should not be imposed on Scripture or on any Flood model. This misinterpretation

appears to be the source of inaccurate Flood model concepts and has caused difficulty in accepting the Biblically consistent detailed analysis and modelling I have presented.

Conclusion

I am pleased that Mr Johnston did not cite one mathematical error or correct one of my quantitative evaluations. He did not identify any alternate quantitative values that I should have used in my modelling. He avoided all use of quantitative values in his critique of my analysis and in some cases confuses assumptions with conclusions. When his criticisms are quantitatively evaluated they are found to be without substance.

Mr Johnston seems to use his understanding of geology and belief in a pre-Permian Flood model to dictate his understanding and exegesis of Scripture. In doing so he misses important clues to understanding the Flood.

Unfortunately no attempt was made by Mr Johnston to test his own assumptions. No comparison with written records and ice core records was attempted. He provided no study of the climatic impact of the postulated post-Flood catastrophism required by a pre-Permian boundary. If he had tested his own hypothesis and assumptions he possibly would have realised the inadequacy of his assumptions and their incompatibility with the written and geophysical records. He also might have realised that his assumptions and explanations were either explicitly addressed or encompassed by the maximum plausible catastrophism modelled in my paper.

The remaining technical inaccuracies in the pre-Permian model and in Mr Johnston's letter could be addressed. However, I believe time would be better spent in working towards a rigorous comprehensive young-Earth Flood model that addresses the fossil record.

The fossil record is important, but it is the geophysical data that is the easiest to model and, I contend,

provides us clues to unravel all the issues he mentioned. Most answers already exist, some published some time ago and others yet to be published. I believe I and others can answer the issues raised about the fossil record in a rigorous manner. It will take some time to complete the research and analysis, and prepare the findings for publication. If the Lord grants me the time and ability (and my family responsibility permitting) another detailed paper or two will be published in the coming years.

I am not infallible and I am sure my modelling and analysis could be improved. One could quibble at length over minor improvements that could be made. **However, it will take very large changes to substantially affect the conclusion and place the Flood/post-Flood boundary lower in the geologic column.**

Until a quantitative and detailed critique of my analysis showing a multiplicity of errors orders of magnitude in size and in many of the independent evidences is provided, I am compelled by the data to believe the Flood/post-Flood boundary is very late in the geologic column. I hope those that advocate a pre-Permian boundary will be able to look beyond their paradigm and see the data set before them. The thoughts of readers with insight into alternate interpretations **with quantitative assessments of the evidences,** rather than conjecture and untested 'explanations', are still invited.

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REFERENCES

1. Holt, R. D., 1996. Evidence for a Late Cainozoic Flood/post-Flood boundary. *CEN Tech.J.*,10(1):128-167.
2. Johnston, R. H., 1997. Letter to the Editor: The Flood/post-Flood Boundary. *CEN Tech. J.*,11(2):162-165.
3. There were a few errata in my paper which are described elsewhere (p. 298 this issue). The single mathematical correction reinforces the conclusion that the Flood/post-Flood boundary is late in the Pleistocene.

4. Johnston, Ref. 2, p. 162.
5. Johnston, Ref. 2, p. 162.
6. Holt, Ref. 1, see for example, pp. 139 and 144.
7. Johnston, Ref. 2, p. 163.
8. Johnston, Ref. 2, p. 163.
9. For example, D. R. Humphreys, personal communication, 1996.
10. Johnston, Ref. 2, p. 163.
11. I thank Mr Johnston for pointing out that the relevance of Job 26:10 to this specific issue is not as clear as the King James Version suggests. I have therefore left Job 26:10 out of the list of relevant Scriptures.
12. Morris, H. M., 1996. The geologic column and the Flood of Genesis. *Creation Research Society Quarterly*, 33(1):49-57.
13. Johnston, Ref. 2, pp. 164-165.
14. Holt, Ref. 1, p. 129.
15. Johnston, Ref. 2, p. 163.
16. Holt, Ref. 1, p. 139.
17. In my paper I estimated the amount of Flood sediment that was reworked after the Flood assuming a Flood/post-Flood boundary at the end of the Palaeozoic, not at the beginning of the Permian as Mr Johnston advocates. This changes the ratio of reworked to original Flood sediment somewhat, but I chose to cite what was published as this was the number in my paper that Mr Johnston objected to.
18. Johnston, Ref. 2, p. 163.
19. Johnston, Ref. 2, p. 165.
20. Holt, Ref. 1, p. 145.
21. Johnston, Ref. 2, p. 163.
22. Johnston, Ref. 2, p. 163.
23. Harris, R. L., Archer, Jr, G. L. and Waitke, B. K. (eds), 1980. *Theological Wordbook of the Old Testament*, Moody Bible Institute, Chicago, Vol. 1, p. 498.

THOUGHTS ON FLOOD GEOLOGY

Dear Editor,

I wish to comment on some problems relating to Flood geology raised by the Editor,¹ and by Robinson.² The Editor is to be congratulated on inviting European and North American colleagues to present the evidence supporting their various views as to where the Flood/post-Flood boundary may lie in the rock record. Such open and frank discussion can only be beneficial to the creationist cause generally, as it encourages widespread debate and discussion on this most vital aspect of creationist thinking.