

The pre-Flood/ Flood boundary: Correcting significant misunderstandings

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Does the paper *Precambrian metazoans within a young-earth Flood framework*,¹ by Carl R. Froede, represent properly the views of other creationists who have sought to define the pre-Flood/Flood boundary? I want to unpack the logic of a misunderstanding within Froede's paper concerning his statements about my book *Grand Canyon: Monument to Catastrophe*² and my technical paper *The Pre-Flood/Flood Boundary: As Defined in Grand Canyon, Arizona and Eastern Mojave Desert, California*³ co-authored with Kurt P. Wise.

My analysis centers on the four-sentence paragraph from pages 92 and 93 of Froede's paper. Froede writes:

'Although this criterion is consistent with the thesis of this paper, Austin and Wise still draw their pre-Flood/Flood boundary in the Grand Canyon area at the base of the Cambrian. This requires that all Precambrian strata in the region to have been formed during the Creation Week. Austin and Wise apparently have completely overlooked the metazoan fossils identified in Precambrian strata in the Grand Canyon as documented by uniformitarians.⁴⁷⁻⁵⁰ Their position may have been influenced by their acceptance of the general framework of the global uniformitarian stratigraphic timescale.⁴⁵

Sentence #1

'...Austin and Wise still draw their pre-Flood/Flood boundary in the Grand Canyon area at the base of the Cambrian.'

This first sentence does not contain a misprint because, in his conclusions, Froede rephrases the assertion, *'The pre-Flood/Flood boundary in the Grand Canyon area cannot lie at the base of the Cambrian as Austin and Wise proposed because there is conclusive evidence of Precambrian animal fossils in the region'*.⁴ Is documentation provided by Froede to a page of my publication, to support the assertion that I believe the base of the Cambrian marks the beginning of the Flood in Grand Canyon region? No specific documentation is provided. In the publication cited by Froede, however, my co-author and I disavow what Froede says we believe:

'It has been common to assign the pre-Flood/Flood

*boundary to the Precambrian/Cambrian boundary. In the eastern Mojave, where the Precambrian/Cambrian boundary is gradational and unassociated with an unconformity, these definitions fail to produce an unambiguous pre-Flood/Flood boundary.'*⁵

Concerning the location of the pre-Flood/Flood boundary in Grand Canyon, we wrote in the technical paper: *'... the Sixtymile Formation is the oldest preserved Flood deposit in Grand Canyon of Arizona'*.⁶ My book contains a similar statement concerning the Sixtymile Formation of Grand Canyon: *'... most of the Chuar Group is pre-Flood ... with only the uppermost strata representing redeposition by the initial upheaval beginning the Flood'*.⁷ The technical paper also locates the boundary in the Mojave Desert of eastern California: *'... the Kingston Peak Formation signals the beginning of the Flood in the Mojave region of California and should be correlated with the Sixtymile Formation of Grand Canyon of Arizona'*.⁸

The Sixtymile Formation occurs within the tilted and deeply buried Grand Canyon Supergroup just above the Chuar Group in eastern Grand Canyon. Together, the tilted Chuar Group and Sixtymile Formation occur *beneath* the Great Unconformity and the Tapeats Sandstone that mark the conventionally defined base of the Cambrian within Grand Canyon. The Sixtymile Formation is universally assigned to what geologists call the Precambrian.⁹ The Kingston Peak Formation is also universally assigned to the Precambrian by geologists.¹⁰ Furthermore, the base of the Cambrian is recognized conventionally in the Mojave as occurring within the Wood Canyon Formation.¹¹ In eastern Mojave, the Kingston Peak Formation occurs stratigraphically more than 2000 meters *below* the Wood Canyon Formation and more than 2000 meters *below* the conventional Precambrian/Cambrian boundary.¹²

Therefore, I affirm that my published statements locate the pre-Flood/Flood boundary *within the Precambrian*, as the Precambrian has been conventionally defined. I object strenuously when Froede insists, mistakenly, that I place the pre-Flood/Flood boundary *at the base of the Cambrian*.

Sentence #2

'This requires that all Precambrian strata in the region to have been formed during the Creation Week.'

Here Froede asserts that, if one takes the position that the pre-Flood/Flood boundary is located at the base of the Cambrian, then, that premise requires that all Precambrian strata of the region date from Creation Week. This is not, however, my view. I believe that some Precambrian sedimentary strata represent Creation Week Day Three and following, some represent post-Creation-Week but pre-Flood ocean floor, and some represent early Flood sedimentation.¹³ How does Froede deal with my *three-fold* division of Precambrian strata? He simply sweeps my three-fold division aside with the false statement that my boundary

'... requires all Precambrian strata in the region to have formed during Creation Week'. Does Froede address my interpretation of post-Creation but pre-Flood ocean floor within the Precambrian strata of the southwestern United States? No, he appears to ignore it.

Sentence #3

'Austin and Wise apparently have completely overlooked the metazoan fossils identified in Precambrian strata in the Grand Canyon as documented by uniformitarians.'

Is it true that I have 'completely overlooked' the metazoan fossils *identified* by uniformitarians within Precambrian strata of Grand Canyon? Consulting Froede's paper we find the text referring to two fossils identified by uniformitarians within Precambrian strata of Grand Canyon.¹⁴ These two fossils are *Chuarina* and *Brooksella*. The four references that Froede cites (his references 47 to 50) appear to add one other possible metazoan fossil ('the vase-shaped microfossils' of Froede's references 47 and 49) to Precambrian strata of Grand Canyon. Did I 'completely overlook' *Chuarina*, *Brooksella*, and 'vase-shaped microfossils' within Grand Canyon strata? My technical paper identifies Precambrian fossils (including five references to uniformitarian literature), with special mention of '*Chuarina*, a probable algae' (including three references to uniformitarian literature) and the vase-shaped microfossils ('melanocyrrillids,' with one reference to uniformitarian literature).¹⁵ My book contains a lengthy discussion of Precambrian fossils, including three paragraphs describing *Chuarina*, one paragraph describing *Brooksella*, and four paragraphs describing 'vase-shaped microfossils'.¹⁶ Do my two publications identify and describe Precambrian fossils of Grand Canyon better than Froede's paper? It would appear so.

A second question follows. Have uniformitarian geologists *documented* undoubted *metazoan* fossils within Precambrian strata of Grand Canyon as suggested by Froede's four references? Of the four references that Froede cites as evidence for metazoans in Grand Canyon (his references 47 to 50), two identify *Chuarina* as an alga (*not* a metazoan), two identify *Brooksella* as a metazoan trace fossil, and two identify 'vase-shaped microfossils' but leave the biologic affinity in question. No recent paleontologist has defended a *metazoan* affinity for *Chuarina* in Grand Canyon.¹⁷ 'Vase-shaped microfossils' are regarded by Horodyski as either 'fossil heterotrophic protists or sporangia of eukaryotic algae' (Froede's reference 49, p. 563). Porter and Knoll¹⁸ suggest heterotrophic protist (*not* a metazoan), whereas Bloeser¹⁹ suggests the encystment stage of an eukaryotic alga (*not* a metazoan).

That leaves *Brooksella* as Froede's only documented metazoan trace fossil from the Precambrian of Grand Canyon. However, *Brooksella* is a much-disputed structure within Froede's references. Although two references cited by Froede consider *Brooksella* from the Nankoweap Forma-

tion of Grand Canyon to be a trace fossil of a burrowing metazoan (references 30 and 31), two other references in Froede's paper give good reason to attribute *Brooksella* to a gas-escape structure (references 7 and 32). If *Brooksella* is an undoubted fossil burrow of a metazoan, three other Froede references should include it as a trace fossil in their catalogs (references 2, 3 and 8). However, these three Froede sources ignore *Brooksella*. Only *two* specimens of *Brooksella* have been described in Grand Canyon, both specimens are sandstone from the Nankoweap Formation within Basalt Canyon, and both specimens now reside in museum collections. Diligent search recently of the Nankoweap Formation within Basalt Canyon by Horodyski failed to reveal any new specimens.²⁰ During recent fieldwork on isotopes in the Cardenas Basalts within Basalt Canyon, I walked the same outcrops of the Nankoweap Formation as Horodyski. I did not find further examples of *Brooksella* either. Most geologists now regard the two specimens of *Brooksella* as inorganically formed, being some kind of gas-escape structure formed within the sandstone.²¹

What is the quality of the documentation offered by Froede for the existence of *metazoan* fossils within Precambrian strata of Grand Canyon? Do we need to come to grips with the undoubted fact of '*metazoan fossils identified in Precambrian strata in the Grand Canyon as documented by uniformitarians*' as Froede insists? *Chuarina* is most likely an alga, vase-shaped microfossils are likely protists or algae, and *Brooksella* is probably a gas-escape structure. Therefore, the documentation establishing *metazoans* within Precambrian strata of Grand Canyon remains poor. Someone reading Froede's conclusion concerning '*conclusive evidence of Precambrian animal fossils*'²² might get the impression that metazoan *body* fossils are common within Precambrian strata of Grand Canyon. Imagine their disappointment when they read the technical literature and find obscure references to just *two* doubtful metazoan *trace* fossils from the Nankoweap Formation of Grand Canyon, and significant reinterpretations of *Brooksella* as an inorganic structure. Furthermore, imagine their dismay when they discover that documented *metazoan* trace fossils no longer occur within Grand Canyon because both specimens of *Brooksella* have been removed to museums!

Froede should take care to qualify his statements, especially statements related to major conclusions, if the evidence remains weak. Froede should acknowledge that those of us who understand *metazoan* fossils within Precambrian strata of Grand Canyon to be very dubious do so based upon attention to the data, not because we in a deliberate way 'completely overlook' the data. If we make interpretations by scrutiny of data, that is science. If we make interpretations after deliberately overlooking data, that implies bias.

Sentence #4

'Their position may have been influenced by their ac-

Table 1. Five points of misunderstanding in discussion of the pre-Flood/Flood boundary. Carl Froede's interpretation of Steven A. Austin's position is contrasted with Austin's own statements of his position.

	Froede on Austin's position	Austin's position
1.	Austin believes the pre-Flood/Flood boundary occurs <i>at the base of the Cambrian</i> in southwestern United States.	Austin believes the pre-Flood/Flood boundary occurs <i>within the Precambrian</i> in southwestern United States.
2.	Austin believes in global correlation of the pre-Flood/Flood boundary at the base of the Cambrian.	Austin believes that five boundary criteria should be used to locate the pre-Flood/Flood boundary <i>globally</i> .
3.	Austin's model requires all Precambrian strata of Grand Canyon region to be Creation Week rocks.	Austin has a three-fold division of Precambrian strata of Grand Canyon: (1) Creation Week, (2) post-Creation but Pre-Flood, and (3) early Flood.
4.	Austin's boundary model has significant problems with fossils within Precambrian strata of Grand Canyon, especially fossil metazoans and tracheophytes.	Austin's boundary model explains well-documented cyanobacteria, algae, and protists (metazoans and tracheophytes are not yet well documented) within Precambrian strata of Grand Canyon.
5.	Austin's criteria for locating the pre-Flood/Flood boundary are biased by uniformitarian and evolutionary assumptions.	Austin's five criteria for locating the pre-Flood/Flood boundary are grounded on presuppositions derived from the historical framework of Scripture.

ceptance of the general framework of the global uniformitarian stratigraphic timescale.'

This fourth sentence proposes that my understanding of the pre-Flood/Flood boundary is somehow linked to a presupposition involving the '*acceptance of the general framework of the global uniformitarian stratigraphic timescale*'. In the paper's abstract Froede says, '*Some creation scientists have proposed that the presence or absence of metazoans can be used to determine where Grand Canyon strata fit within their uniformitarian-column-based framework*'.²³

Froede has laid a very serious intellectual charge at the feet of another creationist and catastrophist. The charge is evolutionary bias! What is the nature of the uniformitarian presupposition, and how has it affected my interpretation of the pre-Flood/Flood boundary globally? Froede provides his answer in the next two sentences:

*'Even if the pre-Flood/Flood boundary did occur at the base of the Cambrian in Grand Canyon, the base of the Cambrian could not be taken as the pre-Flood/Flood boundary in other parts of the world. Biblical geological models are fundamentally different from geological models based on evolutionary uniformitarianism.'*²⁴

A similar charge was made by Froede in a recent paper in *Creation Research Society Quarterly*:

'... the core issue is whether or not young-earth creationists should use the global uniformitarian column to define biblical history. Austin and Wise follow the general framework of the global uniformitarian column.... They have also proposed that the pre-Flood/

*Flood boundary should occur at the uniformitarian Precambrian/Cambrian boundary.... Since the Austin/Wise stratigraphic model for the Grand Canyon is inconsistent with the physical evidence, perhaps they should reexamine the role of the global uniformitarian column in their model.'*²⁵

According to Froede, my interpretation of the pre-Flood/Flood boundary is derived from my allegiance to '*geological models based on evolutionary uniformitarianism*'. That allegiance, Froede supposes, motivates me to locate the pre-Flood/Flood boundary in the southwestern United States *at the base of the Cambrian*. My commitment to the evolutionary-uniformitarian bias, according to Froede, also causes me to extrapolate the boundary *at the base of the Cambrian* to other parts of the world, and requires that the pre-Flood/Flood boundary be located *globally* at the base of the Cambrian. This characterization of my boundary criteria is, I maintain, completely false. The boundary, I believe, lies *within* Precambrian strata, and its location has not been determined by some kind of evolutionary bias.

Froede's accusation of evolutionary bias is refuted by my real criteria for locating the pre-Flood/Flood boundary. I locate the boundary, not by supposing 'base of the Cambrian' or other conventional time-stratigraphic boundary, but by using five discontinuity criteria.²⁶ The technical paper has an extensive description of these five suggested criteria and their application to strata of the southwestern United States. The five boundary criteria are (1) mechanical-erosional discontinuity, (2) time or age discontinuity, (3) tectonic discontinuity, (4) sedimentary discontinuity, and (5) paleontological discontinuity. These five boundary criteria

are developed with application to stratigraphy through using the Scriptural framework of earth history they are designed to interpret.²⁶ Thus, decisions about the pre-Flood/Flood boundary made using my five discontinuity criteria are *unbiased* by evolutionary assumptions.

Conclusion

My purpose has been to unpack errors of logic and scholarship, and thereby, illuminate the characteristics of a significant misunderstanding. Table 1 summarizes five points of misunderstanding concerning the pre-Flood/Flood boundary. Froede begins with a false supposition concerning where I place the pre-Flood/Flood boundary (point 1) and through a bizarre conflation of errors proceeds to accusations of evolutionary bias (point 5). Froede's accusation of bias is not a passing and insignificant statement — we find it stated in his paper's abstract, introduction, body and conclusion.

Scholarship is Froede's problem. He has not shown how the supposed bias has entered into my conclusions concerning the pre-Flood/Flood boundary. If Froede believes that I bias my boundary criteria by direct application of the time divisions of the standard uniformitarian column, he needs to document, with rigorous citation from my writings, the specific time division of the standard uniformitarian column that I believe coincides with the pre-Flood/Flood boundary. He can no longer say 'base of the Cambrian' without specific citation. He should name the time division with documentation from my writings, *or* he should abandon the allegation of bias.

Froede should lay aside his imagined criteria that he supposes I use to locate the pre-Flood/Flood boundary. Instead, he needs to employ the five discontinuity criteria I have illustrated in his own efforts to locate the boundary. Doing this will be beneficial to creationist stratigraphy.

The lesson to be learned from all this is that statements made in papers about the views of other creationists should be more carefully checked by authors, reviewers and editors so as to correct any misunderstandings of other creationists *before* such papers are published. Proper scholarship demands this, and creationists should be striving for the highest standards possible. Unfortunately, Froede has made errors in propagating serious misunderstandings concerning the work of other creationists. It would be appropriate for him to acknowledge this in print, and to re-examine his other writings accordingly.

References

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4. Froede, Ref. 1, p. 94.
5. Austin and Wise, Ref. 3, pp. 42, 44.
6. Austin and Wise, Ref. 3, p. 37.
7. Austin, Ref. 2, p. 66.
8. Austin and Wise, Ref. 3, p. 37.
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13. Austin, Ref. 2, pp. 59–67; Austin and Wise, Ref. 3, pp. 42–44.
14. Froede, Ref. 1, p. 92.
15. Austin and Wise, Ref. 3, p. 41.
16. Austin Ref. 2, pp. 134–138, surveys the large subject of Precambrian fossils of Grand Canyon.
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21. Ford, Ref. 9, p. 53. Horodyski, Ref. 20, p. 39.
22. Froede, Ref. 1, p. 94.
23. Froede, Ref. 1, p. 90.
24. Froede, Ref. 1, p. 93. Froede believes this statement is very important because he repeats it in the conclusion of his paper (p. 94).
25. Froede Jr, C.R., Precambrian plant fossils and the Hakatai Shale controversy, *Creation Res. Soc. Quart.* 36:106–113, 1999. Froede believes that tracheophyte fossils occur in the Hakatai Shale of Grand Canyon. This proposition is discussed by Austin, Ref. 2, p. 137.
26. Austin and Wise, Ref. 3, pp. 38, 39.

The pre-Flood/ Flood boundary: scholarship and clarification

Carl Froede Jnr. replies

I appreciate the time and effort expended by Dr Steve Austin in responding to my recent article¹ that questioned some of his work, especially the part relating to the Grand Canyon. I believe his clarification of these issues reflects a modification to some of his earlier ideas. I would encourage Dr Austin to consider revising his excellent Grand Canyon book² to reflect the useful information he has shared in his letter. These changes will be explained later within this letter. First, I would like to address Dr Austin's concern regarding my 'scholarship'.

What is 'scholarship'?

The Webster's II New Riverside University Dictionary³ defines scholarship as:

1. The methods, discipline, and achievements of a scholar.
2. Knowledge resulting from study and research in a field.
3. Financial aid awarded to a student.

When Dr Austin questioned my 'scholarship', he apparently had reference to the second definition of this word. Dr Austin has reviewed and cited most of the references in my article and found that some, but not all of them, are inconclusive. Some of these references state that metazoans have been found, and indicate that some of the anomalies thought to be metazoans may not be metazoans at all, but features caused by uncertain processes. This highlights what scientists do in proposing theories and debating the physical evidences that lend support to a particular theory. Metazoans have been found in Precambrian strata within the Grand Canyon at a lower level than Dr Austin has recognized them. Not all scientists studying metazoans have recanted their original finds, although Dr Austin's letter gives the impression that uniformitarian scientists are all in agreement about this. Because the Precambrian is said to speak about the roots of the evolution of life on Earth, many scientists are wary of exposing their model(s) to the possibility that animal life on Earth is much older than allowed by mainstream models. Although not openly acknowledged, a sort of scientific peer pressure exists that tends to keep researchers within the accepted bounds of current evolutionary thought, this being especially true with